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# TREES AND SHRUBS;

AN ABRIDGMENT OF

The Arboretum et Fruticetum Britannicum;

CONTAINING

## THE HARDY TREES AND SHRUBS OF BRITAIN,

NATIVE AND FOREIGN,

SCIENTIFICALLY AND POPULARLY DESCRIBED;

WITH THEIR PROPAGATION, CULTURE, AND USES;

AND

*ENGRAVINGS OF NEARLY ALL THE SPECIES.*

BY J. C. LOUDON, F.L.S., H.S., &c.,
AUTHOR OF "COTTAGE, FARM, AND VILLA ARCHITECTURE."

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# PREFACE.

THIS Abridgement of the *Arboretum et Fruticetum Britannicum* contains.—

1. Characters and short Popular Descriptions of all the species and varieties of hardy trees and shrubs now in British gardens, with directions for their culture; including the soil most suitable for them, their propagation, and their uses in the arts, &c.

2. Engravings of all the species which are described, with the exception of half a dozen. The whole arranged according to the Natural System; all the engravings being to the scale of two inches to a foot, or one sixth of the natural size.

3. The Scientific Names and Scientific Synonymes of all the species; and their Popular Names in the languages of the different countries where they are indigenous or cultivated.

4. An Alphabetical Index to all the species and varieties, with their synonymes.

5. A Tabular Analysis of the Leaves, by which the name of any species of tree or shrub described in the work may, in general, be discovered, from a small portion of a shoot with the leaves on.

6. Specific Characters, Descriptions, and Figures of some species, more particularly of pines, firs, and oaks, which were not in the country in 1838, when the large work was completed.

In a word, though this Abridgement does not include all the interesting and useful information on the natural history of trees which will be found in the larger work, or any of the portraits of entire trees which constitute so distinguished a feature in it, yet it contains all that is necessary to enable the reader to discover the names of the different species, and to ascertain their culture, propagation, and uses in Britain; in short, all that is essential for the nurseryman, gardener, and forester.

The most remarkable circumstance connected with this Abridgement is, that the Author has been able to obtain figures of nearly all the species. For the drawings or specimens from which these additional figures were taken, he is indebted to the kind assistance of various Public Institutions, and of several of the most eminent botanists and possessors of herbariums and living collections in Europe and North America.

The Institutions to which he is under obligations are, the Linnean and Horticultural Societies of London, the British Museum, the Museum of Natural History of Paris, and that of Berlin: and the Botanists who have kindly lent him drawings or specimens include the late A. B. LAMBERT, Esq.; Sir W. J. HOOKER; Dr. LINDLEY; the late Professor DON; GEORGE DON, Esq., who prepared the characters of the Orders and of the Genera; Messrs. LODDIGES; the late Professor DECANDOLLE; M. ALPHONSE DE CANDOLLE; W. BORRER, Esq.; P. B. WEBB, Esq.; Baron DE LESSERT; M. MICHAUX; Signor G. MANETTI; M. OTTO; M. CHARLES RAUCH; M. FRANCIS RAUCH, who made most of the drawings; and Drs. TORREY and GRAY: to all of whom; to the Curators of most of our Botanic and Horticultural Gardens, and those of many foreign ones; and to all Nurserymen and Gardeners, both at home and abroad, who may have rendered him assistance, he begs to return his most sincere thanks.

To the Council of the Horticultural Society of London he is under especial obligations, for their permission to make drawings from the cones and other specimens sent home by their collectors, DOUGLAS and HARTWEG, and for authorising him to procure information from their intelligent and experienced superintendent of the arboricultural department of the Garden, Mr. GEORGE GORDON, A.L.S.; and to Mr. GORDON he is indebted for the ready and obliging manner in which, at all times, he rendered his assistance.

*Bayswater, April*, 1842. J. C. L.

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EXO'GENÆ.

DICHLAMY'DEÆ.

*Thalamifloræ.*

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*** By turning to the pages of the Contents, the whole of the species and varieties, with their synonymes, of any genus or order, may be seen at a glance; and, by turning to the General Index at the end, any particular species, whether known by its general name or its synonyme, may be found at once, both in the Contents and in the body of the work.

# ENUMERATION

OF THE

# GENERA, SPECIES, AND VARIETIES, WITH THEIR SYNONYMES, SCIENTIFIC AND POPULAR,

IN THE ORDER IN WHICH THEY ARE DESCRIBED.

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In the following Table the Synonymes are printed in Italics. English specific names are omitted when they are merely translations of the scientific names. French, German, and Italian generic names are, with few exceptions, not given when they are the same, or nearly the same, as the scientific ones; and the specific names are only given in these languages when they are synonymes, and not mere translations.

## Class I. EXO'GENÆ.

## Subdiv. I. DICHLAMY'DEÆ.

### Subcl. I. THALAMIFLO'RÆ.

**Sect. I.**

*Carpella, that is, the component Parts of compound Capsules or Fruits, numerous; or the Stamens placed opposite the Petals.*

### Ranunculàceæ.

Tribe I. CLEMATI'DEÆ.

I. *C*LE'MATIS *L.* - 2
*Virgin's Bower, Ladies' Bower: Clématite*, Fr.; *Waldrebe*, Ger.; *Clematide*, Ital.

§ i. *Flámmula* Dec.

1. Flámmula *L.* - 3
C. *ùrens* Gerard, C. *marítima* All. Ped., C. *suavèolens* Sal. Prod., C. *paniculàta* Thun.: *Sweet-scented Virgin's Bower: Clématite odorante*, Fr.; *Scharfe Waldrebe*, Ger.
2 rotundifòlia *Dec.* 3
C. *frágrans* Ten.
3 marítima *Dec.* - 3
4 rubélla *Dec.* - 3
5 cæspitòsa *Dec.* - 4
C. *cæspitòsa* Scop.
C. *Flámmula* Bert.
6 paniculàta - - 4
C. *paniculàta* Thun.

2. orientàlis *L.* - 4
C. *flàva* Mœnch, C. *glaúca* Willd., C. *ochroleùca* Hort.: *yellow-flowered V. B.*

3. chinénsis *Retz.* - 5
C. *sinénsis* Lour. coch.

4. Vitálba *L.* - - 5
Traveller's Joy. — C. *áltera* Matth., C. *tértia* Com., *Viórna* Ger. & Lob., V*itis nìgra* Fuch.: *Old Man's Beard, Bindwith, Common V. B., Wild Climber, Great Wild Climber: Clématite brulante*, Fr.; *Gemeine Waldrebe*, Ger.; *Vite bianca*, Ital.

5. virginiàna *L.* - 6
C. *canadénsis* Mill. Dict., C. *cordifòlia* Mœnch supp., C. *triternàta* Hort.: *Broad-lvd Canada V. B.*
2 bracteàta *Dec.* - 6
C. *bracteàta* Mœnch.

6. gràta *Wall.* - 7
C. *odoràta* Hort., C. *triternàta* Hort., C. *nepalénsis* Hort.

7. Viórna *L.* - - 7
C. *purpùrea rèpens* Ray: *Leathery flowered V. B., American Traveller's Joy, Virginian Climber, Purple Climber: Clématite Viorne*, Fr.; *Glockenblüthige Waldrebe*, Ger.
2 cordàta - - 7
C. *cordàta* Sims B. M.
C. *Simsii Swt. H. B.*

8. cylíndrica *Sims* - 8
C. *crìspa* Lam., C. *Viórna* Bot. Rep., C. *divaricàta* Jacq.: *Long-flowered V. B.: Clématite à longues Fleurs*, Fr.

9. reticulàta *Walt.* - 9
C. *ròsea* Abbott, C. *Simsii Hook.*

10. Hendersòn*ii* Chan. 9

§ ii. *Viticélla* Dec.

11. flórida *Thun.* - 10
A*trágene índica* Desf., A*trágene flórida* Pers.: *Clématite à grandes Fleurs*, Fr.; *Grossblüthige Waldrebe*, Ger.
2 flòre plèno *Hort* - 10
3 fl. pl. violàceo - 10
C. *f. Siebóldii D. Don.*
C. *Siebóldii Paxt.*
C. *bìcolor* Hort.

12. cærùlea *Lindl.* - 11
C. *azùrea grandiflòra* Sieb., C. *grandiflòra* Hort.

13. Viticélla *L.* - 11
*Viticélla deltöidea* Mœnch: *Red-flowered Ladies' Bower*, Gerard: *Italienische Waldrebe*, Ger.
1 cærùlea - - 12
2 purpùrea - - 12
3 múltiplex *G. Don* 12
C. *pulchélla* Pers.
4 tenuifòlia *Dec.* - 12
C. *ten. lusitánica* Tourn.
5 baccàta *Dec.* - 12
C. *campaniflòra* Hort.

14. campaniflòra *Brot.* 12
C. *viornöides* Schrader, C. *parviflòra* Dec.
2 parviflòra *Fis. Göt.* 12

15. crìspa *L.* - - 13
C. *flòre crìspo* Dill. Elth.

§ iii. *Cheirópsis* Dec.

16. cirrhòsa *L.* - - 13
A*trágene cirrhòsa* Pers.: *Traveller's Joy of Candia*, and *Spanish Traveller's Joy*, Gerard; *Spanish Wild Climber*, Parkins.; *Evergreen Clematis: Clématite à Vrilles*, Fr.; *Einfachblättrige Waldrebe*, Ger.
2 pedicellàta *Dec.* - 14
C. *pedicellàta* Swt. H. B.
C. *baleárica* Pers.
C. *cirrhòsa* Sims B. M.
3 angustifòlia - - 14
C. *baleárica* Rich. B. M.
C. *calycìna* Ait.
C. *polymórpha* Hort.
*Clématite de Mahon*, Fr.

§ iv. A*nemoniflòra.*

17. montàna *Ham.* - 15
C. a*nemoniflòra* D. Don.

*Other Species.*—C. holoserícea *Pursh*, *l*igusticifòlia *Nuttall*, Drummóndii Tor. & Gray, parviflòra *Nuttall*, lasiântha *Nutt.*, linearíloba *Dec.*, Pitcheri Tor. & Gray, pubéscens, *v*itifòlia, Buchani*àna* - 15

II. *A*TRA'GENE *L.* - 16
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2 White flws. *Dec.* 16
3 sibírica ? - - 16
A. *sibírica* L.

2. sibírica *L.* - - 17
A. *alpìna* Gmel. & Pall., *Clématis sibírica* Mill. Dict. & Dec.
2 Blue flws. *B. M.* 17
A. *ochoténsis* Pallas ?
A. *alpìna* L. ?

3. americàna *Sims* - 17
*Clématis verticillàris* Dec.
2 oblìqua *Dou. MS.* 17

*Other Species and Varietics.*—*A.* ochoténsis *Pall.* (A. *sibírica* var. ?), *A.* columbiàna *Nutt.* (*Clématis columbiàna* Tor. & Gray i. p. 11.) - - 17

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The Pæony.—*Peony, Piony : Gichtterrose*, Ger. ; *Rosa del Monte*, Span. ; *Peonia*, Ital.

1. *Moútan* Sims - 18
Tree Pæony.—P. *arbòrea* Dn. P. *suffrutícòsa* B. Rep.: *Pivoine Moutan*, Fr.; *BaumartigeGichtterrose*, Ger.; *Hoa-Ouang*, and *Pe-Leang-Kin*, Chinese.
1 papaveràcea *B. R.* 18
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II. Xanthorhi'za *L.* 19
The Yellow-Root.

1. apiifòlia *L'Hérit.* - 20
*Xanthorise à Feuilles de Persil*, Fr. ; *Sellerie-blattrigeGelbwurz*, Ger.

*Winteràceæ.*

I. Illi'cium *L.* - 20
*Aniseed Tree : Badiane, Anis étoilé*, Fr. ; *Sternanis*, Ger. ; *Badiano*, Ital.

1. floridànum *Ellis* 20
*Florida Illicium, Red-flowered Anise-seed Tree* Mor. Hist.: *Badiane de la Floride*, Fr. ; *Unächter Sternanis*, Ger.

*Magnoliàceæ.*

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§ i. *Magnoliástrum.*

1. grandiflòra *L.* - 22
*Laurel Bay, Big Laurel, Large Magnolia, Laurier tulipier*, Fr. ; *Grossblumiger Magnolie*, or *Bieberbaum*, Ger. ; *Magnolia Tulipano*, Ital.
2 obovàta *Ait.* - 22
3 exoniénsis *Hort.* - 23
*M. g. lanceolàta* Ait.
*M. g. stricta* Hort.
*M. g. ferrugínea* Hort.
4 angustifòlia *Hort.* 23
5 præ'cox *Andry.* - 23

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2. glaúca *L.* - - 25
*M. frágrans* Salisb. : *Swamp Sassafras, Beaver-wood, White Bay, Small Magnolia, Swamp Magnolia* : *Magnolie glauque*, Fr. ; *Albero de Castora*, Ital.
2 sempervìrens *Hort.* 25
3 Thomsoniàna Thp. 25
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4. macrophýlla *Mx.* 28
*M. Micháúxii Hort.* : *Large-leaved Umbrella Tree*, Amer.

5. acuminàta *L.* - 29
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2 Soulangeàna - 33
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9. purpùrea *Sims* - 35
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2 grácilis - - 35
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*M. tomentòsa* Thun.

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The Tulip Tree.

1. Tulipífera *L.* - 36
*The Poplar, White Wood* and *Canoe Wood*, Amer.; *Virginian Poplar, Tulip-bearing Lily Tree*, and *Saddle Tree*, Eng.: *Tulipier de Virginie*, Fr. ; *Virginischer Tulipeerbaum*, Ger. ; *Tulipiere*, Ital.
2 obtusíloba *Mx.* - 36
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*Yellow Wood.*
*Yellow Poplar.*
*Other Vars.* — L. T. acutifòlia *Mx.*, L. T. flàva *Hort.* 36

Anonàceæ.

I. *Asi'mina* Adanson 38
Annòna *L.*, *Orchidocárpum* Mx., *Porcèliæ sp.* Pers., *Uvária* Tor. & Gray : *Custard Apple : Asiminier*, Fr. ; *Flaschenbaum*, Ger.

1. tríloba *Dun.* - 38
Annòna *tríloba* L., *Porcèlia tríloba* Pers., *Orchidocárpum arietinum* Mx., *Uvária tríloba* Tor. & Gray : *Papau*, Amer. ; *Asiminier de Virginie* Fr.; *Annona*, Ital.

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2 lobàtum *Dec.* - 40
*M. virgínicum* L.
3 smilácinum - 40
*M. smilácinum* Dec.

2. dàùricum *Dec.* - 40
*Trilophus Ampelisàgria* Fis. *M. canadénse* β Lam.

II. Co'cculus *Bauh.* 40
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1. carolìnus *Dec.* - 41
*Menisp. carolìnum* L., *Wendlándia populifòlia* Willd., *Andróphilax scandens* Wendl., *Baumgártia scándens* Mœnch : *Coccola*, Ital.

Berberàceæ.

I. *Be'rberis* L. - 42
The Berberry. — *Pipperidge Bush : E'pine vinette*, Fr.; *Berberitze*, Ger.; *Berbero*, Ital.

1. sibírica *Pall.* - 42
B. *altàica* Pal.

2. vulgàris *L.* - 42
B. *ætnénsis* Presl, B. *macrocárpa* of some : *PipperidgeTree*, Dr. Turner : *E'pine vinette* Fr.; *Gemeine Berberitze*, Ger.
2 lùtea - - 43
3 álba - - 43
4 violàcea - 43
5 purpùrea - 43
B. *innominàta* Kalm.

6 nìgra - - 43
7 dúicis - - 43
8 aspérma - - 43
9 longifòlia - - 43
10 glaúca - - 43
B. *glaúca* Booth.
11 mìtis - - 43
12 provinciàlis - 43

3. emarginàta *Willd.* 44
4. crética *L.* - 44
B. *c.* buxifòlia Tourn.
5. cratæ'gina *Dec.* - 45
6. ibérica *Stev.* - 45
B. *vulg.? v. ibérica* Dec., B. *sinénsis* Wal.
7. canadénsis *Mill.* 45
B. *vulgàris* Mx., B. *v. canadénsis* Mart. Mill.
8. sinénsis *Desf.* - 46
B. *vulgàris* Thunb.
9. dú'cis *D. Don* - 47
10. buxifòlia *Lam.* - 47
11. actinacántha *Mart.* 47
12. heterophýlla *Jus.* 48
B. *ilicifòlia* Forst, B. *tricuspidàta* Sm.
13. empetrifòlia *Lam.* 48
14. dealbàta *Lindl.* - 48
B. *glaúca* Hort.
15. asiática *Roxb.* - 49
*The Lycium of Dioscorides:* B. *tinctòria* Lech.: *the Raisin Berberry.*
16. aristàta *Dec.* - 49
B. Chítria *Buch.*, B. *angustifòlia* Roxb., B. *sinénsis* Desf.

*Other Species of* Bèrberis. — *B.* Corìlaria *Royle*, chinénsis *Gill.*, ruscifòlia *Lam.*, corymbòsa *Hook. et Arn.*, glomeràta *Hook. et Arn.*, Grevilleàna Gill.

II. MAHO'NIA Nutt. 50
The Mahonia, *or Ashberry.*— Bérberis *of Authors*, *Odostèmon* Raf.

1. fasciculàris *Dec.* 50
Bérberis *pinnàta* Lag., Bérberis *fasciculàris* Pen. Cyc.
2. Aquifòlium *Nutt.* 51
Bérberis Aquifòlium Ph.
2 nutkàna *Dec.*
3. nervòsa *Nutt.* - 52
Bérberis *nervòsa* Ph., *M. glumàcea* Dec., Bérberis *glumàcea* Pen. Cyc.
4. rèpens *G. Don* - 52
Bérberis Aquifòlium Lindl., Bérberis *rèpens* Pen. Cyc., B. Aquif. *rèpens* Tor. & Grey.
2 r. fasciculàris - 53

*Other Species of Mahònia.* — M. tenuifòlia, M. nepalénsis, M. acanthifòlia, M. tragacanthòides, M. *caraganæfòlia* - 53

**Sect. II.**
*Carpella solitary, or connate; Placenta parietal (that Part of the Capsule which the Seeds are attached to adhering to the Sides or Walls o the Ovary or Germen), attached to the Walls or Cells of the Ovary.*

## Cruciàceæ.

I. VE'LLA - - 53
The Vella
1. Pseùdo-Cýtisus *L.* 54
Cress-Rocket. — V. *integrifòlia* Sal.: *Faux-Cytise*, Fr.; *Strauchartige Velle*, Ger.

## Cistàceæ.

I. CI'STUS *L.* - - 54
The Cistus, *or Rock Rose.*— *Holly Rose*, Gerard; *Gum Cistus: Ciste*, Fr.; *Cisten Rose*, Ger.; *Cisto*, Ital.
1. purpùreus *Lam.* 55
C. *créticus* Hort. Kew.
2. incànus *L.* - - 55
C. *álbidus* Hort., C. *cymòsus* Dec.
3. corbariénsis *Pour.* 55
C. *salviæfòlius* β Dec., C. *populifòlius mìnor* of some nurseries, C. *hýbridus* Pourr.
4. populifòlius *L.* - 56
5. laurifòlius *L.* - 56
6. ladaníferus *L.* - 57
*Ladano*, Ital.
1 albiflòrus *Dec.* - 57
C. *Lèdon* Clus. Hist.
2 maculàtus *Dec.* - 57
3 plenifòlius *Ait.* - 57
7. cýprius *Lam.* - 57
C. *ladaníferus* Bot Mag., C. *stenophýllus* Lk., C. *salicifòlius* of some.

*Other Species of* Cistus. — C. heterophýllus, C. créticus, C. crispus, C. Cupaniànus, C. hirsùtus, C. láxus, C. villòsus, C. oblongifòlius, C. undulalàtus, C. salviæfòlius, C. longifòlius, C. psilosépalus - 75

II. HELIA'NTHEMUM 58
The Helianthemum, *or Sun Rose.*—Cisti sp. L.: *Heliantheme*, Fr.; *Sonnen Gurtel*, Ger.; *Eliantemo*, Ital.
1. vulgàre *Gært.* - 58
Cistus *Heliánthemum* L. &c.

*Varieties.* — Pale yellow double-flowered, Lee's new double yellow.

2. surrejànum *Mill.* 58
Cistus *surrejànus* L.
3. serpyllifòlium *Mill.* 59
Cistus *serpyllifòlius* L
4. grandiflòrum *Dec.* 59
Cistus *grandiflòrus* Scop.
5. taúricum *Fisch.* - 59
6. apennìnum *Dec.* - 59
Cistus *apennìnus* L., Cistus *hispidus* β Lam.: *Erba bottoncina*, Ital.
7. macránthum *Swt.* 60
2 múltiplex *Swt.* - 60
8. canéscens *Swt.* - 60
9. hyssopifòlium *Ten.* 60
1 crocàtum *Swt.* - 61
2 cùpreum *Swt.* - 61
3 múltiplex *Swt.* - 61
10. scabròsum *Pers.* 61
Cistus *scabròsus* Ait.

**Sect. III.**
*Ovarium solitary; Placenta central. (The Column in the Fruit to which the Seeds are attached central, and not adhering to the Side as in Sect. II.)*

## Malvàceæ.

I. HIBI'SCUS *L.* - 62
The Hibiscus.—*Ketonie*, Fr., *Eibisch*, Ger.; *Ibisco*, Ital.
1. syrìacus *L.* - 62
*Althæa Frutex: Ketmie des Jardins*, Fr.; *Syrischer Eibisch*, Ger.
2 fòliis variegàtis - 62
3 flòre variegàto - 62
4 flòre purpùreo - 62
5 fl. purp. plèno - 62
6 flòre rùbro - - 62
7 flòre álbo - - 62
8 flòre álbo plèno - 62

## Tiliàceæ.

I. TI'LIA *L.* - 63
The Lime Tree.—*Lime Tree*, Gerard: *Lind*, Anglo-Sax.; *Tilleul*, Fr.; *Bastholtz*, Ger.; *Linde*, Ger. and Dutch; *Tiglia*, Ital.; *Tilo*, Span.; *Lípa*, Russ.
1. europæ'a *L.* - 63
T. *intermedia* Dec., T. *vulgàris* Hayne, T. *e. boreàlis* Wahl.
1 parvifòlia - - 64
T. *microphýlla* Vent., &c.
T. *e. var.* γ L.
T. *ulmifòlia* Scop.
T. *sylvéstris* Desf.
T. *parvifòlia*, Ehrh.
T. *cordàta* Mill.
2 grandifòlia - 64
T. *platyphýlla* Scop.
T. *cordifòlia* Bess.
T. *europæ a* Desf.
T. *grandifòlia* Sm.
3 intermèdia - - 65
T. *intermèdia* Hayne.
T. *platyphýlla mìnor* H.
4 laciniàta - - 65
T. *platyph. laciniàta* Hor.
T. *asplenifòlia nòva* Hort.
5 rùbra - - 66
T. *corinthìaca* Bosc.
T. *corállina* Hort. Kew.
T. *e.* β *rùbra* Sibthorp.
T. *e.* γ Sm. Fl. Brit.
T. *grandifòlia* β Sm. E. Fl.
6 parvifòlia aúrea 66
7 grandifòlia aúrea 66

*Other Varieties.*—With variegated leaves, T. vitifòlia, co-

rylifòlia, grandifòlia *Sm.*, corállina (syn. *europæ'a* Hook. Lond.), mutábilis, láte bracteàta, præ'cox, pyramidàlis, intermèdia, tenuifòlia, oblìqua, europæ'a, *Sm.*, parvifòlia *Sm.*, argéntea (syn. *álba* W. & K.)

2. (eur.) álba *W. & K.* 67
T. *americàna* Du Roi, T. *argéntea* Desf., T. *rotundifòlia* Vent., T. *tomentòsa* Mœnch.

3. americàna *L.* - 68
T. *glàbra* Vent., T. *caroliniàna* Wangenh., T. *canadénsis* Mx., T. *glàbra* Dec.: *Smooth-lvd, or black, Lime Tree, and Bass Wood*, Amer.

2 heterophýlla - 69
T. *heterophýl.* Vent., &c.

3 álba - - 69
T. *álba* Mx., &c.
T. *laxifòra* Pursh.

4 pubéscens - 69
T. *pubéscens* Ait., &c.

*Other American Lime.* — *T.* p. leptophýlla *Vent.* - - 71

## *Ternströmi*àceæ.

I. MALACHODE'NDRON *Cav.* 71
The Malachodendron.— *Stuártia L' Hérit., Stewártia L.*

1. ovàtum *Cav.* - 71
*Stuártia pentagýnia* L'Hérit., *Stewártia Malachodénd.* Miller: *Stewartia à cinq Styles*, Fr.

II. STUA'RT*IA* Cav. 72
The Stuartia.

1. virgínica *Cav.* - 72
*Stewártia Malachodéndron* L., *Stuártia marilándica* Bot. Rep.: *Stewartia à un Style*, Fr.; *Eingriffliche Stuartie*, Ger.

III. GORDO'N*IA* Ellis 73
The Gordonia.

1. Lasiánthus *L.* - 73
Loblolly Bay.— *Hypéricum Lasiánthus* L.: *Gordonia à Feuilles glabres*, Fr.; *Langsticlige Gordonie*, Ger.

2. pubéscens *L'Hér.* 73
*Lacuthèa flórida* Sal., *Franklinia americàna* Marsh.: *the Franklinia*, Amer.; *Behaarte Gordonie*, Ger.

## *Hypericàceæ.*

I. *H*YPE'RICUM *L.* 74
The St. John's Wort.— *Fuga Dæmonum: Mille Pertuis*, Fr.; *Johanniskraut.*, Ger.; *Iperico*, Ital.

§ i. A*scyreìa* Chois.

A. *Styles commonly* 3.

1. elàtum *Ait.* - 75

2. hircìnum *L.* - 75
*Tragium* Clus., *Androsæ'mum fœ'tidum* Bauh.: *Mille Pertuis à Odeur de Bouc*, Fr.

2 obtusifòlium *Dec.* 75

3 mìnus *Dec.* - 75

B. *Styles commonly* 5.

3. Kalmi*ànum* L. - 75
H. *Bartrámium Mill.*: *Virginia St. John's Wort.*

4. *Uràlum* Ham. - 76

5. calycìnum *L.* - 76
*Androsæ'mum constantinopolitànum fl. máx.*, Wheeler's Journey: *the large-flwd St. John's Wort, the large-flwg Tutsan, the Terrestrial Sun, Aaron's Beard: Mille Pertuis à grandes Fleurs*, Fr.; *Grossblumiger Johanniskraut*, Ger.; *Asciro*, Ital.

§ ii. *Perforària* Chois.

A. *Sepals entire.*

6. prolíficum *L.* - 77
H. *foliòsum* Jacq., H. *Kalmiànum Du Roi.*

B. *Sepals toothed, usually with the Teeth glandular.*

7. empetrifòlium *W.* 77
*Other Species of Hypéricum.*— *H.* nepalénse *Royle*, *H.* adpréssum *Bartr.*, *H.* rosmarinifòlium *Lam.*, H. galiòides *Lam.*, *H.* fasciculàt. *Lam.* 77

II. A*NDROSÆ'MUM Ch.* 77
The Androsæmum, *or Tutsan.* — *Hypéricum* L.: *Androsème*, Fr.; *Johanniskraut*, Ger.; *Androseme*, Ital.

1. officinàle *Allioni* 78
Common Tutsan.—*Clýmenon Italòrum* L'Obel, *Hypéricum Androsæ'mum* L.: *Park Leaves: Androsème officinale*, Fr.; *Breitblättriges Johanniskraut*, Ger.; *Ciciliana*, Ital.

## *Aceràceæ.*

I. *A*'CER *L.* - - 79
The Maple, and the Sycamore.— *E'rable*, Fr.; *Ahorn*, Ger.; *Acero*, Ital.; *Arce*, Span.

A. *Leaves simple, or only slightly or occasionally lobed.*

1. oblóngum *Wall.* 79
A. *laurifòlium* D. Don; A. Buzimpàla *Hamilt.*

2. tatáricum *L.* - 80
*Zarza-modon, or Locust-tree*, Russ.

B. *Leaves* 3-*lobed, or trifid; rarely* 5-*lobed.*

3. spicàtum *Lam.* - 80
A. *montànum* Ait., A. *pennsylvánicum* Du Roi, A. *parvifòrum* Ehrh.: *Mountain Maple: E'rable de Montagne*, Fr.; *Berg Ahorn*, Ger.; *Acero di Montagna*, Ital.

4. striàtum *L.* - 81
A. *pennsylvánicum* Lin. Sp., A. *canadénse* Marsh.: *Snake-barked Maple, Moose Wood, Dog Wood: E'rable jaspé*, Fr.

C. *Leaves* 5-*lobed.*

5. macrophýllum *Ph.* 82

6. platanòìdes *L.* - 83
*Norway Maple: E'rable plane, or E'rable de Norvège*, Fr.; *Spitz Ahorn, or Spitzblättriger Ahorn*, Ger.; *Acero riccio*, Ital.

2 Lobèlii - - 83
A. *Lobèlii Tenore.*
A. *platanòìd.* Don's Mill.

3 variegàtum *Hort.* 83
*albo-variegàtum* Hayne.

4 aúreo-var. *Hort* 83

5 laciniàtum *Dec.* 83
A. p. *crispum* Lauth.
*Eagle's Claw Maple.*
*Hawk's Foot Maple.*

7. sacchárinum *L.* 85
*Sugar Maple, Hard Maple, Bird's-eye Maple* Amer.; *Acero del Canadà*, Ital.

2 nìgrum - - 85
A. *s. β nigrum* Tor. & G.
A. *nigrum* Mx.
*Black Sugar Tree, or Rock Maple*, Mx.

8. Pseùdo-*Plátanus L.* 86
*The Sycamore, or Great Maple, Plane Tree*, Scotch; *E'rable Sycamore*, Fr.; *Ehrenbaum*, Ger.; *Acero Fico*, Ital.

2 opulifòlia - - 86
A. *opulifòlium* Hort.
A. *trilobàtum* Hort.
A. *barbàtum* Hort.

3 longifòlia - - 86
A. *longifòlium* Booth.

4 flàvo-variegàta - 86
A. *P. lutéscens* Hort.
*Corstorphine Plane.*

5 álbo-variegàta - 86

6 purpùrea *Hort.* - 86

*Other Varieties.*—Hodgkins's Seedling, *Hort. Soc.*; Leslie's Seedling, *Hort. Soc.*: *A.* P. stenóptera *Hayne Dend.*; *A.* P. macróptera *Hayne Dend.*; *A.* Pseud. micróptera *Hayne Dend.* - - 86

9. obtusàtum *Kit.* - 88
A. *neapolitànum* Tenore; A. *hýbridum* Hort. Soc. Gard.: *the Neapolitan Maple.*

2 coriàceum - 88
A. *coriàceum* Bosc.

3 ibéricum - - 88
A. *ibéricum* Bieb.

4 lobàtum - - 89
A. *lobàtum* Fisch.

D. *Leaves* 5- *rarely* 7-*lobed.*

10. O'palus *Ait.* - 89
The Italian Maple.— A. *rotundifòlium* Lam.; A. *italum* Lauth.; A. *villòsum* Presl; *l' E'rable Opale*, Fr.; *Loppo*, Ital.

11. circinàtum *Pursh* 89

12. palmàtum *Thunb.* 90

13. eriocárpum *Mx.* 90
The White Maple.— A. *dasycárpum* Willd.; A. *tomentòsum* Hort. Par.; A. *glaúcum* Marsh.; A. *virginiànum* Duh.; A. *rùbrum* Wangenh.; *Silver-lvd, or soft, Maple*, U. S.; *Sir Charles Wager's Maple; E'rable à Fruits cotonneux*, Fr.; *Rauher*

*Ahorn*, Ger.; *Acero cotonoso*, Ital.

*Varieties.* — *A.* coccíneum, *A.* macrocárpum, *A.* flóridum, *A.* Pàvia, &c., *of the Nurseries* - - - 90

14. rùbrum *L.* - 91
*A. virginiànum* Herm.; *A. coccineum* Ait.; *A. glaúca* Marsh.; *A. caroliniànum* Wall.; *A. sanguineum* Spach: *Soft Maple, Swamp Maple.*
2 intermèdium *Lodd.* 92

15. monspessulànum *L.* 92
*A. trílobum* Mœnch; *A. trifòlium* Duh.; *A. trilobàtum* Lam.: *Französischer Ahorn*, Ger.; *Acero minore*, Ital.

16. campéstre *L.* - 93
*Kleiner Ahorn*, Ger.; *Galluzzi, or Pioppo*, Ital.
2 fòliis variegàtis - 93
3 hebecárpum *Dec.* 93
*A. campéstre* Wallr.
*A. móllе* Opiz.
4 collìnum *Wallr.* - 93
*A. affine, and*
*A. macrocárpum* Opiz.
5 austrìacum *Tratt.* 93
*Other Varieties.* — *A.* c. lævigàtum *Lodd.*, *A.* c. nànum *Lodd.*, *A.* taúricum, and *A.* hyrcànum - - 93

17. créticum *L.* - 94
*A. heterophýllum* Willd.; *A. sempervirens* L. Mant.; *A. obtusifòlium* Sibthorp.

*Other Species of* A'*cer.* — *A.* barbàtum *Mx.*, *A.* opulifòlium, *A.* granatéense *Bois.*, *A.* parvifòlium *Tausch*, *A.* glàbrum *Torr.*, *A.* tripartìtum *Nutt. MSS.*, *A.* grandidentàtum *Nutt. MSS.* - - 94

II. NEGU'NDO Mœn. 122
The Negundo, *or Box Elder.*—A'*cer* L.; Negúndium *Rafin.*

1 fraxinifòlium *Nutt.* 122
A'*cer* Negúndo *L.*
N. *aceróides* Mœnch.
Neg. *americànum* Rafin.
*Ash-lvd Maple.*
*Black Ash.*
*E'rable à Giguières* Illinois
*Acero americana*, Ital.
2 críspum *G. Don* 122
3 violàceum *Booth* 122

*Other Species.*—*N.* califórnicum *Tor. & Gray.*

## Æsculàceæ.

I. Æ'SCULUS *L.* - 124
The Horsechestnut.—*Hippocástanum* Tourn.: *Marronier d'Inde*, Fr.; *Rosskastanie*, Ger.

1. Hippocástanum *L.* 124
*Hippocástanum vulgàre* Trn.: *Marronier d'Inde*, Fr.; *Gemeine Rosskastanie*, Ger.; *Marrone d'India, or Ippoccastina*, Ital.
2 flòre plèno - 124
3 aúreo-variegàtum 124
4 argénteo-varieg. 124
5 incìsum *Booth.* 124
*Æ. asplenifòlia* Hort.

*Other Vars.* — *Æ.* H. críspum, nìgrum, præ'cox, striàtum, tortuòsum, &c. - 124

2. (H.) ohioénsis *Mx.* 125
*Æ. ohioénsis* Lindl., ? *Æ. pállida* Willd., *Æ. cchinàta* Muhl., *Æ. glàbra* Tor. & Gray, *Pàvia ohioénsis* Mx., *Pàvia glàbra* Spach: *Ohio Buckeye, Fetid Buckeye*, Amer.

3. (H.) rubicúnda *Ls.* 126
*Æ. cárnea* Hort., *Æ. ròsea* Hort., *Æ. coccinea* Hort., *Æ. H. var. rubicúndum* Schubert, *Æ. Watsoniàna Spach: Whitley's Fine Scarlet.*
2 ròsea - - 127
*Æ. ròsea* Hort.

*Other Varieties.*—Whitley's New Scarlet, *Æ.* H. americàna - - - - 127

4. glàbra *Willd.* - 127
5. (g.) pállida *Willd.* 127

II. PA'VIA Boerh. - 128
The Pavia.—*Buckeye, Smooth-fruited Horsechestnut Tree.*

1. rùbra *Lam.* - 128
*Æ'sculus Pàvia L.*, *Æ. Pàvia* α *rùbra* Hayne, *Pàvia parvifòra* Hort.: *Small Buckeye*, Amer.: *Marronier Pavie*, Fr.; *Marrone di Pau*, Ital.
2 argùta *G. Don* - 129
3 sublaciniàta *Wats.* 129
*Æ. P. serràta* Hort.
4 hùmilis - - 129
*P. hùmilis* G. Don.
*Æ. hùmilis* Lodd.

2. flàva *Dec.* - 130
*Æ'sculus flàva* Ait., *Æ. lùtea* Wangh., *Pàvia lùtea* Poir.: *the Sweet Buckeye, the Big Buckeye*, Amer.; *the Yellow Horsechestnut.*

3. (f.) neglécta *G. Dn.* 131
*Æ'sculus neglécta* Lindl.

4. macrocárpa *Hort.* 132
*Æ'sc. P. macrocárpa* Lodd.

5. díscolor *Swt.* - 133
*Æ'sculus discolor* Ph., *Æ. P.* β *discolor* Tor. & Gray.

6. macrostàchya *Lois.* 133
*Æ'sculus parvifòra* Walt., *Æ. macrostàchya* Mx., *P. álba* Poir., *P. édulis* Poit., *Macrothýrsus discolor* Spach.

*Other Kinds of Pàvia.*—P. califórnica *Tor. & Gray* (*Æ'sculus califórnica* Nutt.), Lyònii Hort Soc. Gard. - - 134

## Sapindàceæ.

I. KÖLREUTE'RIA Lx. 134
The Kolreuteria. — *Sapíndus sp.* L. fil.; *Cölreuteria*, Ital.

1. paniculàta *Laxm.* 135
*Sapíndus chinénsis* L. fil., K. *paulliniòides L'Hérit.*

## Vitàceæ.

I. VI'TIS *L.* - - 136
The Grape Vine.—*Giud*, Celtic; *Vid*, Span.; *Vigne*, Fr.; *Vite*, Ital.; *Wein*, Ger.

1. vinífera *L.* - 136
*Vigne*, Fr.; *Gemeiner Weinstock*, Ger.; *Vite da Vino*, Ital.
2 fòliis incànis - 137
*Miller's Grape, or Miller's Black Cluster Grape.*
3 fòl. rubescéntibus 137
*The Claret Grape.*
4 apiifòl. laciniòsa *L.* 137
*Ciotat*, Fr.
*Vite d'Eghitlo*, Ital.

2. Labrúsca *L.* - 137
The Fox Grape.—V. *taurìna* Walt.: *Filziger Wein*, Ger.; *Abrostine*, Ital.

*Varieties.* — The Isabella, Schuylkill or Alexander's, Catawba, and Bland's - 137

3. æstivàlis *Mx.* - 137
The Grape Vine.—V. *vinífera americàna* Marsh., V. *intermèdia* Muhl., V. *palmàta* Vahl.

4. cordifòlia *Mx.* - 138
The Chicken Grape.—V. *incìsa* Jacq., V. *vulpìna* L. spec.: *the Winter Grape, the Frost Grape.*

5. ripària *Mx.* - 138
The sweet-scented Vine.—V. *odoratìssima* Donn: *Vigne de Battures*, Amer.

6. vulpìna *L.* - - 138
The Bullet Grape.—V. *rotundifòlia* Mx.: *Muscadine Grape.*

II. AMPELO'PSIS *Mx.* 139
*Vitis sp.*, *Císsus sp.*: *Ampelosside*, Ital.

1. hederàcea *Mx.* - 139
Five-leaved Ivy.—*Hédera quinquefòlia* Lin. spec., *Vitis quinquefòlia* Lam., *Císsus hederàcea* Ph., C. *quinquefòlia* Hort. Par., *Vitis heder.* Willd., *Ampelópsis quinquefòlia* Hook.: *Vigne Vierge*, Fr.; *Jungfern Reben*, Ger.; *Vite del Canada*, Ital.
2 hirsùta *T. & Gr.* 140
*A. hirsùta* Donn
*Císsus heder.* β *hirsùta* Ph.

2. bipinnàta *Mx.* - 140
*Vitis arbòrea* Willd., V. *bipinnàta* Tor. & Gr., *Císsus stàns* Pers.: *Vite del Carolina*, Ital.

*Other Species of Ampelópsis.* — A. incìsa (*Vitis incìsa* Nutt.); cordàta *Mx.* (*Císsus Ampelópsis* Pers., and *Vitis indivìsa* Willd.); capreolàta *G. Don* (*Vitis capreolàta* D. Don), A. bótrya *Dec.* - - 140

III. CI'SSUS *L.* - 141
The Cissus.—*Ampelópsis and Vitis in part.*

1. orientàlis *Lam.* - 141
*The Ivy Vine.*

## Xanthoxylàceæ.

I. XANTHO'XYLUM *L.* 142
Toothache Tree. — *Kamp-*

*mánnia Rafin.*: *Clavalier*, Fr.; *Zahnwehholz*, Ger.; *Santossilo*, Ital.

1. *f*raxíneum *Willd.* 142
Common Toothache Tree.—*Zanthóxylum ramiflórum* Mx.; *Z. mìte* Willd. Enum.; *Z. caribæ'um* Gært., not of Lam.; *Z. americànum* Mill. Dict.; *Z. clàva Hérculis var.* Lin. sp.; *Z. tricárpum* Hook., not of Mx.: *Clavalier à Feuilles de Frêne*, Fr.; *Eschen-blättriges Zahnwehholz*, Ger.; *Frassino spinoso*, Ital.; *Prickly Ash*, Amer.
2 virginìcum - 143
*X. virgínicum* Lodd. Cat.
? *X.* (f.) *tricárpum.*

2. (*f.*) tricárpum *Mx.* 143
*Z. caroliniànum* Lam., Tor. & Gray; Fagàra *fraxinifòlia* Lam. Ill.

*Other Species of Xanthóxylum.*

—X. mìte *Willd.*, *f*raxíneum *Tor. & Gray.* - - - 143

II. PTE'LEA *L.* - 143
Shrubby Trefoil.—Bellùcia *Adams*: *Orme de Samarie*, Fr.; *Ledcrblume*, Ger.

1. trifoliàta *L.* - 144
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2 pentaphýlla *Mun.* 144
3 pubéscens *Pursh* 144

*Other Species of* Ptèlea.—P. Baldwìnii Tor. & Gray - 144

III. *AILA'NTUS* Desf. 145
The Ailanto.—*Rhús* Ehrh.: *Verne du Japon*, Fr.; *Götterbaum*, Ger.; *Ailanto*, Ital.

1. glandulòsa *Desf.* 145
*A. procèra* Sal., *Rhús hypselodéndron* Mœnch, R. *cacodéndron* Ehrh., R. *sinénse* Ellis: *Aylanthe glanduleux*, Fr.; *drüsiger Götterbaum*, Ger.; *Albero di Paradiso*, Ital.

## Sect. IV.

*Fruit gynobasic; that is, inserted in a fleshy Receptacle, with which the Style is continuous.*

### *Coriàceæ.*

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1. *m*yrtifòlia *L.* - 146
*Fustet des Corroyeurs, or Redoul à Feuilles de Myrte*, Fr.; *Myrtenblättriger Gerberstrauch*, Ger.

*Other Species of Coriária.*—*C.* nepalénsis *Wall. Pl. As.ª Rar.*, *C.* sarmentòsa *Forst.* - 146

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### *Staphyleàceæ.*

I. STAPHYLE'A *L.* 147
Bladder-Nut Tree.—*Staphylodéndron* Tourn.: *Staphilier, faux Pistachier*, Fr.; *Pimpernuss*, Ger.; *Stafilier*, Ital.

1. trifòlia *L.* - - 147
*Bladder-Nut Tree*: *Staphilier à Feuilles ternées*, Fr.; *Virginische Pimpernuss*, Ger.

2. pinnàta *L.* - 148
*Staphylodéndron pinnàtum* Ray: *Staphilier a Feuilles ailées* Fr.; *gemeine Pimpernuss*, Ger.; *Lacrime di Giobbe, or Pistacchio falso*, Ital.: *Job's Tears.*

### *Celastràceæ.*

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E. *vulgàris* Mill. Dict.; *Prick-timber*, Gerard; *Louse Berry, Dogwood*; *Gatteridge Tree*: *Fusain d'Europe*, Fr.; *Bonnet de Prêtre commun*, Fr.; *gemeine Spindelbaum*, Ger.; *Berrette di Prete*, Ital.
2 latifòlius *Lod. Cat.* 150
3 fòl variegàtis *L. C.* 150
4 frúctu álbo *L. C.* 150
5 nànus *Lodd. Cat.* 150

2. verrucòsus *Scop.* 150
E. *europæ'us leprósus* Lin.: *Fusain galeux, ou verruqueux*, Fr.; *Warziger Spindelbaum*, Ger.; *Fusaria verucosa*, Ital.

3. latifòlius *C Bauh.* 150
E. *europæ'us var.* 2. Lin.: *Fusain à larges Feuilles*, Fr.; *breitblättriger Spindelbaum*, Ger. *Fusaria maggiore*, Ital.

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E. *caucásicum* Lodd.

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E. *sempervìrens* Marsh., E. *alternifòlius* Mœnch: *the Burning Bush, Strawberry Tree*, Amer.
2 angustifòlius - 152
*var.* β Tor. & Gray.
? E. *angustifòlius* Pursh.
3 sarmentòsus *Nutt.* 152
*var.* γ Tor. & Gray.
4 obovàtus *Nutt.* - 152
*var.* δ Tor. & Gray.
E. *obovàtus* Dec. Prod.

7. Hamilton*iànus* Wl. 153
E. *atropurpùreus* Wall. Fl. Ind.

*Other Species of Euónymus.*—*E.* japónicus *Thunb.*, japónicus fòliis variegàtis, *garciniæfòlius Roxb.*, grossus *Wall.*, micránthus *D. Don*, lùcidus *D. Don*, echinàtus *Wall.*, tíngens *Wall.*, glàber *Roxb.*, fimbriàtus *Wall.*, índicus *Heyne*, vàgans *Wall.*, subtrifòrus *Blume*, Thunberg*iànus* Blume, péndulus *Wall.*, frígidus *Wall.* - - - 153

II. *C*ELA'STRUS *L.* 154
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1. scándens *L.* - 154
*Bourreau des Arbres*, Fr.; *Baummörder*, Ger.; *Bittersweet, Waxwork*, Amer.

*Other Species of Celástrus.*—*C.* bullàtus *Pluk.*, nepalénsis *Lodd.*, pyracanthifòlius *Lodd.*, 154

III. NEMOPA'NTHES 154
*Iliciòides* Dum. Cours.

1. canadénsis *Dec.* 155
I'*lex canadénsis* Mx., *N. fasciculàris* Rafin., I'*lex delicátula* Bart. Fl. Vir., ? *Prìnos lùcidus* Ait. Hort. Kew.: *Houx du Canade*, Fr.

*Other Species of Celastràceæ.*—*Màytenus* chilénsis *Dec.* 155

### *Aquifoliàceæ.*

I. MYGI'NDA Jacq. 156
I'*lex* Pursh, *Oreóphila* Nutt.

1. *m*yrtifòlia *Nutt.* 156
I'*lex Myrsinìtes* Pursh, *Oreóphila myrtifòlia* Nutt.

II. *I*'LEX *L.* - 156
The Holly.—*Aquifòlium* Trn., Gært.: *Houx*, Fr.; *Stechpalme, or Heilse*, Ger.; *Ilice*, Ital.

A. *Leaves spiny-toothed.*

1. *A*quifòlium *L.* - 157
*Common Holly, Hulver, Hulfere, Holme*, Eng.; *Le Houx*, Fr.; *Stechpalme, Stechlaub, Hulse, Christdorn, Mausdorn, Kleezebusch*, Ger.; *Schubbig hardkelk*, Dutch; *Stikpalme*, Danish; *Jernek, Christtorn*, Swedish; *Warfoseheld, Ostrokof, Padub*, Russ.; *Agrifolio*, Ital.; *Acebo*, Span.; *Azevinho*, Port.

a. *Varieties designated from the Form, Magnitude, Thickness, Surface, or Margin of the Leaf.*

2 hèterophýllum *Ht.* 158
3 angustifòlium *Ht.* 158
4 latifòlium *Hort.* 158
*Water Holly.*
5 altaclerénse *Hort.* 158
6 marginàtum *Hrt.* 158

7 laurifòlium *Hort.* 158
8 ciliàtum *Hort.* - 158
9 ciliàtum mìnus *Ht.* 158
10 recúrvum *Hort.* 158
11 serratifòlium *Hrt.* 158
12 críspum *Hort.* - 158
13 fèrox *Hort.* - 158
*Hedgehog Holly. Houx-hérisson*, Fr.
14 crassifòlium *Hort.* 159
15 senéscens *Swt.* - 159

b. *Varieties designated from the Colours of the Leaf.*

16 álbo-marginàtum 159
17 aúreo-marginàtum 159
18 álbo-píctum *Hort.* 159
19 aúreo-píctum *Ht.* 159
20 fèrox argénteum 159
21 fèrox aúreum *Ht.* 159

c. *Varieties designated from the Colour of the Fruit.*

22 frúctu lùteo *Hrt.* 159
23 frúctu álbo *Hort.* 159
24 frúctu nìgro *Hort.* 159

2. (*A.*) baleárica *D.* 160
The Minorca Holly.—I. *Aquifòlium var. δ* Lam. Dict., I. *maderénsis* Willd. Enum.

3. opàca *Ait.* - 160
American Holly.—*Agrifòlium vulgàre* Clayt. Fl. Virgin., I. *Aquifòlium* Gronov.: *dunkelblättrige Stechpalme*, Ger.; *Agrifolio a Foglie di Quercia*, Ital.
2 laxiflòra - - 161
I. *laxiflòra* Lam.
I. *opàca var.* Nutt.
3 magellánica - 161

B. *Leaves toothed, serrated, or crenate, but not spiny.*

4. *Peràdo* Ait. - 161
I. *maderénsis* Lam.

5. *Cassìne* Ait. - 161
Broad-leaved Dahoon Holly.—*Aquifòlium carolinénse* Catesb., I. *carolinièna* Mill. Dict., I. cassinöìdes Lk. En.: *the Cassèna of the American Indians*, Rafin.

6. angustifòlia *Willd.* 162
I. *myrtifòlia* Walt. &c., I. *rosmarinifòlia* Lam. Ill.

7. vomitòria *Ait.* - 162
South Sea Tree.—I. Cassìne *vèra* Walt., I. *ligústrina* Jacq., Cassìne Peràgua *Mill. Icon.*, I. *Cassèna* Mx., I. *religiòsa* Bart., I. *floridàna* Lam. Ill.: *Houx apalachine*, Fr.; *True Cassine, Cassèna*, Florida; *the Yapon*, Virginia; *the evergreen Cassena, or Cashioberry Bush*, Eng.

C. *Leaves quite entire, or nearly so.*

8. *Dahoón* Wall. - 162
I. Cassìne *Willd.*

*Other Species of* Ilex - 163

III. *Pri'nos L.* - 163
Winter Berry.—*Agèria* Adanson: *Apalanche*, Fr.; *Winterbeere*, Ger.

§ i. *Prinöìdes* Dec.

1. decíduus *Dec.* - 164
*Ilex prinòides* Ait. Hort. Kew., *Ilex decídua* Walt. Fl. Car.

2. ambíguus *Mx.* - 164
Cassìne *carolinièna* Walt. Fl. Car.

§ ii. *Agèria* Dec.

3. verticillàtus *L.* - 164
P. *padifòlius* Willd. Enum., P. *Gronòvii Mx.*, P. *confértus* Mœnch, P. *prunifòlius* Lodd. Cat.

4. lævigàtus *Pursh* 165

5. lanceolàtus *Pursh* 165
P. *canadénsis* Lyon, P. *lùcidus* Hort.

§ iii. *Wintérlia* Mœnch.

6. glàber *L.* - 166
*Ink Berry*, Amer.

7. coriàceus *Pursh* 166
P. *glàber* Wats.

*Varieties.*—Leaves broader than those of the species, obovate-lanceolate and acuminate; and leaves narrower, lanceolate, and acute - - - 166

*Other Species of* Prinos. — *P.* dùbius *G. Don*, *P.* atomàrius *Nutt.* - - - - 166

## Rhamnàceæ.

I. *Zi'zyphus Tourn.* 167
The Jujube.—*Jujubier*, Fr.; *Judendorn*, Ger.; *Giuggiolo*, Ital.

1. vulgàris *Lam.* - 167
Rhámnus *Zizyphus* Lin. Spec.; *Z. sativa* Desf., not of Gært.; *Z.* Jùjuba *Mill. Dict.*, not of Lam.: *Jujubier cultivé*, Fr.; *Brustbeeren*, Ger.; *Giuggiolo*, Ital.

*Other Species of Zizyphus.*—*Z.* sinénsis *Lam.*, Z. spìna Christi, *Z.* flexuòsa, *Z.* incúrva 168

II. *Paliu'rus L.* 168
Christ's Thorn. — *Paliure, Port-chapeau*, Fr.; *Judendorn*, Ger.; *Paliuro*, Ital.

1. aculeàtus *Lam.* 168
P. *pétasus* Dum. Cours., P. *australis* Gært., P. *vulgàris* D. Don, Rhámnus Paliùrus Lin. Spec., *Zizyphus Paliùrus* Willd. Spec.: *Christ's Thorn, or Ram of Libya*, Gerard: *Epine de Christ, Argalon, Porte-chapeau*, Fr.; *geflügelter Judendorn*, Ger.; *Giuggiolo salvatico*, Ital.; *Xlin*, in the herb-shops of Constantinople.

2. (a.) virgàtus *Don* 169

III. Berche'mia N. 169
*Œnóplia* Hedw. F. Gen. and Schult. Syst.

1. volùbilis *Dec.* - 170
Rhámnus *volùbilis* Lin. fil. Suppl., Jacq. Ic. Rar.; *Zizyphus volùbilis* Willd. Spec.; *Œnóplia volùbilis* Schult. Syst.: *Supple Jack*, Virginian.

IV. *Rha'mnus Lam.* 170
The Buckthorn. — *Nerprun*, Fr.; *Wegdorn*, Ger.; *Ramno*, Ital.; *the Ram, or Hart's, Thorn*, Gerard; *Box Thorn.*

§ i. *Marcorélla* Neck.

A. *Alatérnus* Tourn. — *Flowers racemose, 5-cleft. Evergreen Shrubs.*

1. *Alatérnus L.* - 171
*Alatérnus Phillýrea* Mill. Dict.: *Alaterna*, Ital.
2 baleárica *H. Par.* 171
R. *rotundifòlius* Dum.
3 hispánica *H. Par.* 171
4 angustifòlia - 171
R. *Clusii Willd.*
5 fòliis maculàtis 171
6 fòliis aúreis - 171
7 fòliis argénteis - 172

2. hýbridus *L'Hérit.* 172
R. *burgundiacus* Hort. Par., R. *sempervirens* Hortulan.

B. Rhámnus Dec. — *Flowers 4-cleft, in Fascicles*

a. *Branchlets terminating in a Thorn.*

3. cathárticus *L.* 172
*The White Thorn* of the modern Greeks.

4. tinctòrius *Waldst.* 173
R. *cardiospérmus* Willd. Herb.

5. infectòrius *L.* - 173
Avignon Berry. — R. *Lýcium* Scop. Carn.; *Dwarf, or yellow-berried, Buckthorn: Nerprun des Teinturiers, Graine d'Avignon, Nerprun teignant*, Fr.; *färbender Wegdorn*, Ger.; *Cervino pin*, Ital.

6. saxátilis *L.* - 173
R. *longifòlius* Mill. Dict.: *Stein Wegdorn*, Ger.; *Lycio Italiano*, Ital.

7. *b*uxifòlius *Poir.* - 173
? R. *buxifòlius* Brot. Fl. Lus., *Lýcium* buxifòlium Bauh.

8. *l*ycióìdes *L.* - 174

9. Erythróxylon *P.* 174
2 angustíssimum *Dec.*
R. *lycióìdes* Pall. Fl. Ross.

b. *Branchlets not terminated by Spines.*

10. dahùricus *Pall.* 174

11. *a*lnifòlius *L'Hér.* 175
2 frangulöìdes *Dec.* 175
R. *frangulöìdes* Mx.

12. alpìnus *L.* - 175
2 grandifòlius - 176

13. pùmilus *L.* - 176
R. *rupéstris* Scop. Carn.: *Ranno spaccasassi*, Ital.

§ ii. *Frángula* Tourn.

14. caroliniànus *Walt.* 176
15. Frángula *L.* - 177
*Berry-bearing Alder: Nerprun Bourgéne, Aunc noir*, Fr.; *glatter Wegdorn*, Ger.; *Alno nero*, Ital.
2 angustifòlia *Hort.* 177
16. latifòlius *L'Hér.* 177
*Other Species of* Rhámnus. — *R.* persicifòlius *Bert.*, *R.* amygdálinus *Desf.*, *R.* prunifòlius *Sm.*, *R.* Sibthorpiànus Schult. (syn. R. *pubéscens* Sibth. Fl. Græc.), *R.* Purshiànus Dec.. (syn. R. *alnifòlius* Pursh, not of L' Héritier), *R.* oleifòlius *Hook.*, *R.* umbellàtus *Cav. Icon.*, *R.* laurifòlius *Nutt.*, *R.* cròceus *Nutt.*, *R.* lanceolàtus *Pursh*, *R.* parvifòlius *Tor. & Gray*, *R.* ferrugíneus *Nutt.*, *R.* califórnicus *Esch.*, *R.* texénsis *Tor. & Gray*, *R.* pubéscens *Fl. Græc.* - - - 178

V. COLLE'TIA Com. 178
Rhámnus *in part.*
1. hórrida *Lindl.* - 179
*C. fèrox* Gill. et Hook.
*Other Species of Collètia.* — C. spinòsa, C. ulicina, C. *E'phedra Vent. Choix* (syn. Rhámnus E'phedra Domb., Retanilla E'phedra Brong.) - 179

VI. CEANO'THUS *L.* 180
Red Root.—Rhámnus *species* L.: *Ceanothe*, Fr.; *Säkebbaum*, Ger.; *Ceanoto*, Ital.
1. americànus *L.* - 180
*Red Root, New Jersey Tea.*
2 Pitcheri Tor. & Gray.
3 herbàceus T. & G. 180
C. *perénnis* Pursh.
C. *ovàtus* Desf.
4 intermèdius *T. G.* 180
C. *intermèdius* Pursh.
2. azùreus *Desf.* - 180
C. *cærùleus* Lag. Gen. et Spec., C. *bicolor* Willd. in Schlt. Syst.
2 intermèdius - 181
C. *intermèdius* Hort.
3. thyrsifiòrus *Esch.* 181
C. *ovàtus cyàneus* Booth, Baumann, &c.
4. velutìnus *Doug.* 181
5. collìnus *Doug.* 182
*Other Species of Ceanòthus.* — *C.* ovàlis, *C.* sanguíneus, *C.* oregànus, - - - 182

*Homalinàceæ.*

I. ARISTOTE'LIA H. 182
1. *Mácqui* L'Hérit. 182
*A. glanduòsa* R. & P., *A.* Mácqui *in Dec. Prod.*
2 fòliis variegàtis 183
*Other Species of Aristotèlia.* — Azàra dentàta *R. & P.*, Azàra integrifòlia - - - 184

*Anacardiàceæ.*

I. PISTA'CIA *L.* - 184
The Pistachia. — *Terebinthus* Juss.
1. vèra *L.* - - 185
P. *officinàrum* Hort. Kew.: *Pistachier*, Fr.; *Pistazienbaum*, Ger.; *Pistacchio*, Ital.
2 trifòlia *Lin. Spec.* 185
3 narbonénsis *B. M.* 185
P. *reticulàta* Willd.
2. Terebínthus *L.* 185
Venetian, or Chian, Turpentine Tree. — *Terebinthus vulgàris* Tourn., P. *vèra* Mill. Dict.: *Pistachier Terébinthe*, Fr.; *Terpentin Pistacie*, Ger.; *Terebinto*, Ital.
2 sphærocárpa *Dec.* 185
3. Lentíscus *L.* - 186
*The Mastic Tree: Corno capra*, Ital.
2 angustifòlia *Dec.* 186
P. *massiliénsis* Mill. Dict.
P. *ang. massilién.* Tourn.
3 chìa *N. Du Ham.* 186
P. *chìa* Desf. Cat. H. Par.
*Other Species of Pistàcia.* — *P.* atlántica *Desf.* - - 186
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The Sumach. — *Sumac*, Fr.; *Sumach*, Ger.; *Rù*, Ital.

§ i. *Cótinus* Tourn.

1. Cótinus *L.* - 187
Venetian Sumach. — *Cótinus Coggýgria* Scop. Carn., Mœnch Meth., *Cótinus coriàcea* Duh. Arb: *Venus Sumach, Venice Sumach, Wild Olive: Sumach Fustet, or Arbre aux Péruques*, Fr.; *Perücken Sumach*, Ger.; *Scotano*, Ital.

§ ii. Sùmach *Dec.*

2. typhìna *L.* - 187
Stag's Horn Sumach.—R. *virginiàna* Bauh. Pin.: *Virginian Sumach: Somacco pelosc*, Ital.
1 arboréscens - 188
2 frutéscens - 188
3 viridifiòra - 188
R. *viridifiòra* Poir.
3. glàbra *L.* - 188
*Scarlet Sumach.*
1 hermaphrodìta 188
R. *glàbra* Willd. Spec.
2 dioíca - - 188
? 3 coccínea - - 188
R. *caroliniànum* Mill. D.
R. *élegans* Ait., Lodd. Cat.
4. venenàta *Dec.* - 189
Poison Wood, or Swamp, Sumach.—R. *vérnix* Lin. Sp., Big. Med. Bot.; *Toxicodéndron pinnàtum* Mill. Dict.: *Poison Sumach, Poison Elder.*
5. Coriària *L.* - 189
*The Elm-leaved Sumach: Sumac des Corroyeurs*, Fr.; *Gerber Sumach*, Ger.; *Somacco Rhù*, Ital.
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*Mastich-tree-leaved Sumach.*
2 leucántha *Jacq.* 190
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R. *Toxicodéndron*, and R. *radìcans* L., Dec., Don's Mill., &c.
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R. *T.* β *quercifòlium* Mx.
2 radìcans *T. & G.* 191
R. *T.* α *vulgàre* Mx.
R. *T.* β *radìcans* Tor.
3 microcárpon *T. & G.* 191
R. *T.* γ *microcárpon* Mx.

§ iii. *Lobàdium* Dec.

8. aromàticum *Ait.* 191
R. *suavèolens* Ait., R. *trifoliàta* Lodd. Cat., R. *canadénsis* Marsh., *Lobàdium aromàticum* Raf., *Turpínia Raf.*, *Schmàlzia Desv.*, *Myrìca trifoliàta* Hort. *Toxicodéndron crenàtum* Mill. Dict.
*Other Species of* Rhús. — *R.* pùmila *Mx.*, *R.* diversíloba *Tor. & Gray* (R. *lobàta* Hook.), *R.* trilobàta *Nutt.*, *R.* laúrina *Nutt.* - - 192
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*Schìnus sp.* Andr., *Amyris sp.* Cav.
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*Amýris polýgama* Cav. Ic. *Schìnus depéndens* Ort. Decad., *Duvaúa depéndens* α Hook. Bot. Misc.
2. ovàta *Lindl.* - 193
3. latifòlia *Gill.* - 193
D. *depéndens* γ Hook. Bot. Misc.: *Huinghan*, Chili.
*Other Species of Duvaúa.*—D. dentàta *Dec.* (*Schìnus dentàta* Bot. Rep.), D. sinuàta *Lindl.*

*Leguminàceæ.*

Sect. I. *SOPHÒREÆ.*

I. *SOPHO'RA* R. Br. 195
Sophòræ *spec.* Lin. Gen.: *Sophore*, Fr. and Ger.
1. japónica *L.* - 196
S. *sínica* Rosier Journ. Phys.
2 variegàta *Hort.* 196
3 péndula *Hort.* - 196
2. heptaphýlla *L.* - 197
II. VIRGI'LIA L. - 197
1. lùtea *Mx.* - 198
*Yellow Wood.*
III. PIPTA'NTHUS *S.* 198
1. nepalénsis *Swt.* - 199
*Thermópsis laburnifòlia* D. Don, *Anagýris indica* Wall. MS., *Baptísia nepalénsis* Hook. Exot. Fl.

Sect. II. *LO'TEÆ.*

IV. *U'LEX L.* - 199
The Furze.—*Ajonc*, Fr.; *Hecksaame*, Ger.; *Ulice*, Ital.

1. europæ'a *L.* - 200
*Genista spinòsa* L'Obel, U. *grandiflòra* Pour., U. *vernàlis* Thore: *Whin, Gorse, Prickly Broome: Ajonc commun, Jonc marin, Jomarin, Genêt épineux*, Fr.

2. (c.) nàna *Forst.* - 201
U. *minor* Roth Cat., U. *europæ'us* β Lin. Spec.

3. (e.) provinciàlis *L.* 201
U. *austràlis* Clement.

4. (e.) stríctа *Mackay* 201
Irish Furze. — U. *hibérnica* Don's Mill., U. *fastigiàta* Hort.

*Other Species of* U'*lex.* — *U.* genistòides *Brot.* (U. *mitis* Hort., *Stauracánthus aphýllus* Lk.) - - - 202

V. *Spa'rtium Dec.* 202
Spanish Broom.—*Spartiánthus* Lk. Enum., *Genista sp.* Lam. and Mœnch: *Sparzio*, Ital.

1. *júnceum L.* - - 202
*Genista júncea* Lam. and Du Ham., G. *odoràta* Mœnch, *Spartiánthus júnceus* Mœnch: *Genêt d'Espagne*, Fr.; *Binsenartige Pfriemen*, Ger.; *Ginestra di Spagna*, Ital.

2 odoratíssimum 202
S. *odoratíssim.* D. Don.
S. *acutifòlium* Lindl.

3 flòre plèno - 202

VI. *Geni'sta Lam.* 203
*Genista et Spártium spec.* Lin.: *Genêt*, Fr.; *Ginster*, Ger.; *Ginestra*, Ital.

§ i. *Unarmed. Leaves all, or for the most part, trifoliolate.*

1. parviflòra *Dec.* - 203
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2. cándicans *L.* - 204
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3. pàtens *Dec.* - 204
*Spártium pàtens* Cav. Ic.

4. tríquetra *Ait.* - 204
G. *tríquetra* Lam. ?

5. umbellàta *Poir.* 204
*Spártium umbellàtum* Desf., L'Herit.; *Bolina* in Andalusia.

2 capitàta - - 205
*Spártium capitàtum* Cav.

§ ii. *Spinose. Leaves all, or some of them, trifoliolate.*

6. lusitánica *L.* - 205

7. (l.) radiàta *Scop.* 205
*Spártium radiàtum* Lin. sp., Mill. Ic., Sims Bot. Mag., G. *ilvénsis* Dalech.

2 umbellàta -205
G. *umbellàta* Poir.
*Spárt. umbellàtum* Desf.

8. ephedröìdes *Dec.* 205

9. triacánthos *Brot.* 206
G. *rostràta* Poir. Suppl.

2 interrúpta *Dec.* 206
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10. hórrida *Dec.* - 206
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§ iii. *Spinose. Leaves all simple.*

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G. *hispánica* Jacq. Icon. Rar.

12. *Scórpius Dec.* 206
*Spártium Scórpius* Lin. Sp., G. *spiniflòra* Lam. Dict.: *Scorpion Furze*, Gerard.

13. hispánica *L.* - 207
*Spanish Furze*, Hort.

14. ánglica *L.* - - 207
Petty Whin.—G. *minor* Lam. Fl. Fr.

15. germánica *L.* - 207
*Scórpius spinòsus* Mœnch Meth., *Vóglera spinòsa* Fl. Wet.: *Bulimacola di Bosco*, Ital.

2 inérmis *Dec.* - 208

§ iv. *Unarmed. Leaves all simple.*

16. púrgans *L.* - 208
*Spártium púrgans* Lin. Sys.

17. serícea *Wulf.* - 208

18. aphýlla *Dec.* - 208
*Spártium aphýllum* Lin. fil. Suppl., G. *virgàta* Lam. Dict.

19. monospérma *L.* 208
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20. sphærocárpa *L.* 209
*Spártium sphærocárpon* Lin. Mant.

21. æthnénsis *Dec.* 209
*Spártium ætnénse* Biv. St. Sic. Mant., Rafinesq. Specch., Sims Bot. Mag.; *Spártium trispérmum* Sm. in Rees's Cycl.

22. anxántica *Ten.* 209
G. *amsántica* Tenore.

2 scariòsa - - 210
G. *scariòsa* Vin.

23. tinctòria *L.* - 210
G. *itálica* Lodd. Cat.: *Base Broom, Green Weed, Green Wood, Dyer's Weed, Woodwaxen: Genêt des Teinturiers, Genêt de Sibérie*, Fr.; *Färbender Ginster*, Ger.; *Bacellina*, Ital.

2 flòre plèno - 210
3 latifòlia *Dec.* - 210
4 hirsùta *Dec.* - 210
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*Genistöìdes eláta* Mœnch Meth., G. *tinctòria var.* N. Du Ham.

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26. triangulàris *Willd.* 211
G. *tríquetra* Waldst. et Kit. Hung., but not of Ait.

27. sagittàlis *L.* - 211
G. *herbàcea* Lam. Fl. Fr., *Genistélla racemòsa* Mœnch Meth., *Saltzwedèlia sagittàlis* Fl. Wett.

2 mìnor *Dec.* - 211

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29. prostràta *Lam.* 212
G. *pedunculàta* L'Herit. Stirp., G. *decúmbens* Dur. Bourg., G. *Hálleri Reyn. Mem.*

30. procúmbens *W.* 212

31. pilòsa *L.* - - 212
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Portugal Broom. — *Genista álba* Lam. Dict., *Spártium álbum* Desf., *Spártium multiflòrum* Ait. Hort. Kew., *Spártium dispérmum* Mœnch Meth., *Genista multiflòra* N. Duh.: *Spartium à Fleurs blanches*, Fr.; *Weisse Pfriemen*, Ger.

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The Common Laburnum.—C. *alpinus* Lam. Fl. Fr.: *Bean-Trefoile Tree, Peascod Tree* Gerard; *Pea Tree*, Scotch; *Golden chain: l'Aubours, Faux E'bénier, Arbois, Arc Bois*, Fr.; *Gemeine Bohnenbaum*, Ger.; *Aborniello*, Ital.

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Scotch Laburnum. — C. *Labúrnum* β Ait., Lamb., Dec., Fl. Fr.; *Cýtisus angustifòlius* Mœnch Meth., C. L. *var. latifòlium* Pers. and Du Mont.: *Cytise des Alpes, l'Aubours, Alpen Bohnenbaum*, Ger.; *Maggio Ciondolo*, Ital.

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2 muscòsa *Mill.* - 334
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B. *Natives of Europe and Britain.*

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§ vii. *Rubiginòsæ* Lindl.

A. *Species Natives of Britain.*

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The Sweetbriar, or Eglantine.—R. *suavifòlia* Lightf. Scot., Fl. Dan.; R. Eglantèria *Mill. Dict.*, *Lin. Sp.* ed. 1.; R. *agréstis* Savi Fl. Pis.; R. *rubiginòsa parviflòra* Rau. Enum.
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38. micrántha *Sm.* - 337
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39. sèpium *Thuil.* - 337
R. *helvética* and R. *myrtifòlia* Hall., R. *canìna* Dec. Fl. Fr. ed. 3., R. *agréstis* Savi Fl. Pis. R. *biscrràta* Mer. Fl. Par. ex Desv.

40. inodòra - - 338
R. *dumetòrum* Eng. Bot.; R. *Bórreri Sm. Eng. Fl.*, *Don's Mill.*; R *rubiginòsa var. inodòra* Lindl. Ros.

B. *Species Natives of Middle Europe.*

41. lùtea *D. Don* - 338
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3 punícea *Lind. R.* 338
R. *punicea* Mill. Dict., Rossig. Ros.

R. *cinnamòmea* R. Fl. Ger.
R. *lùtea bicolor* Jacq. Vindob., Lawr. Ros., Bt. M.
R. Egl. *punicea* Red. Ros,
R. Egl. *bicolor* Dc. Fl. Fr.
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*Williams's double yellow Sweet Briar.*
5 Hóggii D. Don 339
*Hogg's yellow Amer. Rose.*
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§ viii. *Canìnæ* Lindl.

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45. sarmentàcea *Sw.* 340
R. *glaucophýlla* Winch Geog. Dis., R. *canina* Roth Fl. Ger.
46. cæ`sia *Sm.* - 340
R. *canina pubéscens* Afz. Ros. Suec. Tent., R. *canina* ζ *cæ`sia* Lindl. Ros.

B. *Species Natives of Middle Europe.*

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C. *Species Natives of Asia.*

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R. *indica frágrans* Red. Ros.
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*Rose à Odeur de Thé*, Fr.
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*coccínea* Mill., N. Du Ham.: *Thornless American Azarole: Néflier écarlate*, Fr.; *Scharlachrothe Mispel*, Ger.; *Lazzeruolo rosso*, Ital.

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3 indentàta - - 354
C. *indentàta* Lodd. Cat.
C. *geórgica* Doug.

4 máxima *Lod. Cat.* 354
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C. *acerifòlia* Hort.
C. *? flabellàta* Hort.

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2. glandulòsa *W.* - 354
? C. *sanguínea* Pall. Fl. Ros., ? *Méspilus rotundifòlia* Ehrh. B., *Pyrus glandulòsa* Mœnch C. *rotundifòlia* Booth.

2 succulénta *Fisch.* 354
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3 subvillòsa - - 355
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2 rùbra *Pursh* - 356
C. *edùlis* Ronalds.

3 rùbra stricta *Hort.* 356
C. *p. stricta* Ronalds.

4 aúrea *Pursh* - 356
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C. *dúlcis* Ronalds.
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§ iii. *Macracánthæ.*

5. macracántha *Lod.* 357
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2 mìnor - - 358

§ iv. *Crús-gálli.*

6. Crús-gálli *L.* - 358
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2 spléndens *Dec.* - 359
C. *arbutifòlia* and C *sp n dens* Lodd. Cat.

3 pyracanthif. *Dec.* - 359
C. *pyracanthifòlia* Lodd. Cat.
*Mespilus lùcida* Dum. Cours. Bot. Cult.

4 salicifòlia *Dec.* - 360
C. *salicifòlia.*

5 lineàris *Dec.* - 360
*Méspilus lineàris* Desf. Arb.
C. *lineàris* Lodd. Cat.

6 nàna *Dec. Prod.* 360
*Méspilus nàna* Dum. Sup.

7. (c.) ovalifòlia *Horn.* 360
C. *elliptica* Lodd. Cat., C. *Crús-gálli ovalifòlia* Bot. Reg.

8. (c) prunifòlia *Bosc* 361
*Méspilus prunifòlia* Poir. Dict., C. *caroliniàna* Lodd. Cat.: *Lazzeruolino*, Ital.

§ v. *Nìgræ.*

9. nìgra *W. & K.* - 362
*Méspilus nìgra* Willd. Enum., C. *carpática* Lodd. Cat.
? *C.* fúsca *Jacq.* - 362

10. purpùrea *Bosc* 363
C. *sanguínea* Hort.

2 altàica - - 363
C. *altàica* Lodd. Cat.

§ vi. *Douglàsii.*

11. Douglàs*ii* Lindl. 364

§ vii. *Flàvæ.*

12. flàva *Ait.* - 364
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13. (f.) lobàta *Bosc* 365
*Méspilus lobàta* Poir. Suppl., C. *lùtea* Poir.

14. (f.) trilobàta *L.* 366
C. *spinosissima* Lee.

§ viii. *Apiifòliæ.*

15. *a*piifòlia *Mx.* - 366
C. *Oxyacántha* Walt. Carol., C. *apiifòlia màjor* Lodd. Cat.

2 mìnor - - 366
C. *apiifòlia* Lodd. Cat.

§ ix. *Microcárpæ.*

16. cordàta *Mill.* - 367
*Méspilus Phænópyrum* L., M. *cordàta* Mill., C. *populifòlia* Walt. Car. and Pursh Sept., M. *acerifòlia* Poir. Dict.

17. spathulàta *Elliot* 367
C. *microcárpa* Lindl. Bot. Reg., C. *flórida* Godefroy.

2 geórgica - - 368
C. *geórgica* Lod.

§ x. Azaròli.

18. *Azaròlus* L. - 368
P*yrus* Azaròlus *Scop. Carn.*, *J. Bauh. Hist.*; *Méspilus* Azaròlus *All. Ped.*, N. Du Ham.: *Néflier Azarole*, *Néflier de Naples*, *E'pine d'Espagne*, *Pommettes à deux Closes*, Fr., *Azarol Mispel*, Ger.; *Azzeruolo*, Ital.

*Vars.*—In the *N. Du Ham.* are enumerated: — 1. *Méspilus Aròn*ia, with the leaves hairy beneath; 2. Azarole, with large deep-red fruit; 3. Azarole, with yellowish white fruit; 4. Azarole, with long fruit of a whitish yellow; 5. Azarole, with double flowers; 6. The White Azarole of Italy. - - - - 369

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? C. *maúra* Lin. fil. Sup. according to Dec.: *Sarrour*, Arabic.

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C. *orientàlis* Lindl. Bot. Reg.

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3 Lee*àna* - - 372
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2 flòrida - - 383
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C. *lineàris* Lodd. Cat.

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*Cratæ`gus glaúca* Wall. Cat.

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*Cratæ`gus glàbra* Thunb. Fl. Jap., Bot. Mag., Lodd. Bot. Cav., Colla Hort. Ripul.

2. *a*rbutifòlia *Lindl.* 404
*Cratæ`gus arbutifòlia* Ait. Hort. Kew.

3. integrifòlia *Lindl.* 405
*Pyrus integérrima* Wall. ex D. Don Prod. Fl. Nep.

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1 erythrocárpa *Led.* 406
2 melanocárpa *Led.* 406
*Méspilus Cotoneáster* Pall. Fl. Ross.
M. *melanocárpa* Fisch.
C. *melanocárpa* Lodd. C.
3 depréssa *Fries Nov. Suec., Dec. Prod.*

2. (v.) tomentòsa *L.* 406
*Méspilus tomentòsa* Willd.
Sp., not Lam.; M. *eriocárpa* Dec. Fl. Fr. Synops. and Sup.
3. (v.) laxiflòra *Jacq.* 407
2 uniflòra *Fischer* 407

4. denticulàta - - 407

§ ii. *Sub-evergreen or deciduous. Tall Shrubs or low Trees.*

5. frígida *Wall.* - 407
*Pyrus* Nússia *Ham. in Prod. Fl. Nep., Dec. Prod.*

6. (f.) affìnis *Lindl.* 408
*Méspilus integérrima* Ham. MSS., M. *affìnis* D. Don Prod. Fl. Nep., ? C. *kumàna*, in Lodd. collection.

7. acuminàta *Lindl.* 409
*Méspilus acuminàta* Lodd. Bot. Cab.

8. nummulària *Lindl.* 409
C. *elliptica* Hort., *Eriobótrya elliptica* Lindl., *Méspilus* Cuìle *Hort.*, ? C. *læ`vis* in Lodd. collection.

§ iii. *Leaves evergreen, leathery. Low Shrubs, with prostrate Branches; Trailers, but not properly Creepers.*

9. rotundifòlia *Wall.* 410
C. *microphýlla β U`va-úrsi* Lindl. Bot. Reg., C. *U`va-úrsi* Hort.: *the Bearberry-leaved Nepal Cotoneaster.*

10. (r.) microphýlla 411
11. (r.) *b*uxifòlia *W.* 411
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2. (v.) Botryàpium 412
*Méspilus canadénsis* Lin. Sp., M. *arbòrea* Michx. Arb., *Cratæ`gus racemòsa* Lam. Dict., *Pyrus Botryòpium* Lin. fil. Suppl.; *Arònia Botryàpium* Pers. Syn., *the Canadian Medlar, Snowy Mespilus, June Berry, wild Pear Tree: Alisier de Choisy, Amelanchier de Choisy, Alisier à Grappes*, Fr.; *Traubenbirne*, Ger.

3. (v.) sanguínea - 413
*Pyrus sanguínea* Pursh Fl. Amer. Sept., *Arònia sanguínea* Nutt., *Méspilus canadén-*

*sis γ rotundifòlia* Michx. Fl. Bor. Amer.

4. (v.) ovàlis *Dec.* 413
*Cratæ'gus spicàta* Lam. Dict. ?, *Méspilus* Amelánchier *Walt. Car.*, A. *parvifòra* Doug. MSS.; M. *canadénsis var. α ovàlis* Michx. Am., *Pỳrus ovàlis* Willd. Sp., *Arònia ovàlis* Pers. Syn.: *Amelanchier du Canada, Alisier à Epi*, Fr.; *rundblättrige Birne*, Ger.
2 subcordàta *Dec.* 414
*Arònia subcordàta* Raf.
*Màlus microcárpa* Raf.
3 semi-integrifòlia 414

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XIX. *Me'spilus L.* 414
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1 sylvéstris *Mil. Dic.* 416
2 strícta *Dec. Ait.* 416
3 diffùsa *Dec. Ait.* 416
*Cultivated Varieties.* — 1. Blake's large-fruited Medlar; 2. Dutch Medlar; 3. Nottingham, or common, Medlar; 4. Stoneless Medlar.

2. Smíthii Dec. - 416
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XX. *Py'rus Lindl.* 417
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§ i. *Pyróphorum* Dec.

1. commùnis *L.* - 417
P. *A'chras* Gærtn. Fruct., P. *sylvéstris* Dod. Pempt., *Pyráster* Ray Syn.: *Poirier*, Fr.; *gemeine Birne*, or *Birnebaum*, Ger.; *Pero domestico*, Ital.; *Pera*, Span.; *Gruschka*, Russian.
1 *A'chras Wallr.* - 417
2 Pyráster *Wallr.* 418
3 fòliis variegàtis 418
4 frúctu variegàto 418
5 sanguinoléntа - 418
6 flòre plèno - - 418
*Poire de l'Arménie* B. Jard
7 jáspida - - 418
*Bon Chrétien à Bois jaspé* Bon Jard.
8 sativa *Dec.* - - 418
*Subvars.* — Beurré Diel, Beurré de Rans, Bezi de la Motte, Glout Morceau, Napoléon, Swan's Egg: *and the following Scotch Pears* recommended by Mr. Gorrie, as forms adapted for landscape scenery, — the Benvie, the Golden Knap, the Elcho, the Busked Lady, and the Pow Meg - - - 419

2. (c.) salvifòlia *Dec.* 421
*Aurelian*, or *Orleans Pear; Poirier Sauger*, D'Ourch in Bibl. Phys. Econ. Mai, 1817, p. 299.

3. (c.) nivàlis *Lin. fil.* 421

4. (c.) sinàica *Thouin* 421
P. *Sinài* Desf. Arb., N. Du Ham.; P. *pérsica* Pers. Syn.: the Mount Sinai Medlar.

5. (c.) salicifòlia *L.* 422
P. *elæagnifòlia* Pall., P. *orientàlis* Horn. Suppl., P (c.) *elæagnifòlia* Arb. Brit 1st ed.

6. (c.) amygdalifórmis 422
P. *sylvéstris*, Magnol Bot., P. *salicifòlia* Lois. Not.

7. sinénsis *Lindl.* 422
P. *commùnis* Lois. Cochin, P *sinica* Royle Ill.: *Ri vulgo Nas*, Japanese: *the Sandy Pear, Snow Pear, Sand Pear: Sha Lee*, Chinese.

8. bollwylleriàna - 423
P. *bollwylleriàna* J. Bauh Hist., P. *Pollvèria Lin. Mant.*, P. *auriculàris* Knoop Pomol.

9. variolòsa *Wall.* 424
P. Páshia *Ham. ex Herb. Lin. Soc.*

10. Michaúxii Bosc 425

11. índica *Colebr.* - 425

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12. *M*àlus *L.* - 425
P. *Màlus mitis* Wallr. Sched., *Màlus commùnis* Dec. Fl. Fr.: *Pommier commun*, Fr.; *gemeine Apfelbaum*, Ger.; *Pero Melo* and *Melo Pomo*, Ital.

13. (*M.*) acérba *D.* 426
*Pỳrus Màlus austèra* Wallr. Sched., *Màlus acérba* Merat Fl. Par., M. *commùnis sylvéstris* Desf., P. *Màlus sylvéstris* Fl. Dan., P. *Màlus* Smith Eng. Bot.: *Pommier sauvageon*, Fr.; *Holzapfelbaum*, Ger.; *Melo salvatico*, Ital.

14. (*M.*) prunifòlia 426
*The Siberian Crab*; P. *Màlus β hýbrida* Ait. Hort. Kew., ? *Màlus hýbrida* Desf. Arb.

15. (*M.*) baccàta *L.* 427
*Màlus baccàta* Desf. Arb.

16. (*M.*) dioíca *W.* 427
P. *apétala* Münch. Hauvs., *Màlus dioica* Audib. Cat.

17. (*M.*) astracánica 427
*Màlus astracanica* Dum. Cours.: *Transparent de Moscovie, Glace de Zélande: the transparent Crab* of English Nurseries.

*Selection of Vars.* — The Red Astrachan; the White Astrachan; the Black Crab; the Court pendu plat; the Lincolnshire Holland Pippin; the Tulip Apple; the Violet Apple; the Cherry Crab, or Cherry Apple; the Supreme Crab; Bigg's Everlasting Crab - - - - 428

18 coronària *L.* - 429
*Màlus coronària* Mill.: *Crab Apple, the sweet-scented Crab*, Amer.

19. (c.) angustifòlia 430
P. *coronària* Wang. Amer., *Màlus sempervirens* Desf. Arb., P. *pùmila* Hort.

20. spectábilis *Ait.* 431
The Chinese Crab Tree.—*Màlus spectábilis* Desf. Arb., N. Du Ham.; *Màlus sinénsis* Dum. Cours.

*Species of which there are only very young Plants in British Gardens.*

*P.* Sievèrsii Led. Fl. Alt. - 432
*P. nov. sp.* Sievers in Pall. Nord. Beitr.
*P.* Schóttii Ledeb. - - 432
*P* stipulâcea Hort. - - 432

§ iii. *A'ria* Dec.

21. *A'*ria *Ehrh.* - 432
*Cratæ gus A'ria var. α* Lin. Sp., *Méspilus A'ria* Scop.· *Sórbus A'ria* Crantz Austr.; *A'ria Theophrásti L'Obel: white wild Pear, white Leaf Tree, red Chess-Apple, Sea Outer, Cumberland Hawthorn*, Gerard: *Alisier Allonchier, Alisier blanc*, Fr.; *Mehlbeerbaum*, or *Mehlbaum*, Ger.; *Aria*, or *Sorba montana*, Ital.; *Mostaco*, Span.; *Axelbeer*, Dan.; *Oxilbeer*, Swed.
1 obtusifòlia *Dec.* 433
P. A. *ovàlis* Hort.
2 acutifòlia *Dec.* 433
*Cratæ'gus longifòlia* N Du Ham.
? *Pỳrus alpina* Willd. En
3 undulàta *Lindl.* 433
4 angustifòlia *Lindl.* 433
P. A. *longifòlia* Hort.
5 rugòsa *Lindl.* - 433
6 crética *Lindl.* - 433
P. A *rotundifòlia* Hort.; P. *græ'ca* Hort.
P. A. *edùlis* Hort.
*Cratæ'gus græ'ca* Hort.
7 bullàta *Lindl.* - 433
P. A. *acumináta* Hort.

22. (*A.*) intermèdia 434
*Cratæ'gus A'ria β* Lin. Sp., C. *scándica* Wahlenb., C. *suècica* Ait.: *Alisier de Fontainebleau*, Fr.; *Schwedischer Mehlbaum*, Ger.
1 latifòlia - - 434
*Cratæ'gus latifòlia* Poir. Dict., Du Ham.
*Sórbus latifòlia* Pers.
*Cratæ'gus dentàta* Thuil.
2 angustifòlia - - 435
P. *edùlis* Willd. Enum.

23. vestìta *Wall.* - 435
*Pỳrus nepalénsis* Hort.; *Sórbus vestita* Lodd. Cat.

1836; *P. crenàta* D. Don Prod. Fl. Nep.

§ iv. *Torminària* Dec.

24. torminàlis *Ehrh.* 436
*Cratæ'gus torminàlis* Lin. Sp., Smith Eng. Bot.; *Sórbus torminàlis* Crantz Austr.: *the Maple-leaved Service Tree*: *Alisier de Bois*, Fr.; *Elzbeerbaum*, Ger.; *Ciavardello*, or *Mangiarello*, Ital.

25. rivulàris *Dougl.* 437
*Pow-itch*, the name of the fruit in the language of the Chenook tribe of Indians.

§ v. *Eriólobus* Dec.

26. trilobàta *Dec.* - 437
*Cratæ'gus trilobàta* Labill., Poir. Suppl.

§ vi. *Sórbus* Dec.

27. auriculàta *Dec.* 438
*Sórbus auriculàta* Pers. Syn.

28. pinnatífida *Ehrh.* 438
*Sórbus hýbrida* Lin., Dec.; *Pỳrus hýbrida* Smith Fl. Brit., not of Willd.: *the Bastard Service Tree.*
2 lanuginòsa - - 438
3 péndula - - 439
S. *hýbrida péndula* Lod.
4 arbúscula *Dec.* - 439

29. aucupària *Gærtn.* 439
The Mountain Ash.—*Sórbus aucupària* Lin. Sp.; *Méspilus aucupària* All.: *Quicken Tree, Quick Beam, wild Ash, wild Service, Wichen Tree, Rowan Tree, Rowne Tree, Roan Tree, Roddan, Rontry, Mountain Service, Witchen, wild Sorb, Whichen, Whitten, Wiggen Tree: Sorbier des Oiseleurs*, or *Sorbier des Oiselaux*, Fr.; *Vogel Beerbaum*, Ger.; *Sorbo salvatico*, Ital.
2 frúctu lùteo - - 439
3 fòliis variegàtis - 439
4 fastigiàta - - 439

30. americàna *Dec.* 440
*Sórbus americàna* Ph. Fl. Bor. Amer., Willd. Enum.; S. *americàna var.* β Michx. Fl. Amer.; P. *canadénsis* Hort.

31. microcárpa *Dec.* 441
*Sórbus aucupària* α Mx. Fl. Bor. Amer., S. *micrántha* Dum. Cours., S. *microcárpa* Ph. Fl. Amer. Sept.

32. *Sórbus Gærtn.* - 442
The True Service.—*Sórbus doméstica* Lin. Sp.; *Pỳrus doméstica* Smith in Eng. Bot., Wallr. Ann. Bot., Don's Mill.: *the Whitty Pear Tree: Cormier*, or *Sorbier cultivé*, Fr.; *Speyerlingsbaum*, or *Sperberbaum*, Ger.; *Sorbo domestico*, Ital.
2 malifórmis *Lodd.* 442
*La Corme-Pomme*, Fr.
3 pyrifórmis *Lodd.* 442
*La Corme-Poire*, Fr.

33. lanuginòsa *Dec.* 443
P. *hýbrida lanuginòsa* Hort., *Sórbus lanuginòsa* Kit. in Litt., and Lodd. Cat.

34. spùria *Dec.* - - 444
P. *hýbrida* Mœnch Weiss. *Sórbus spùria* Pers. Syn., *Méspilus sorbifòlia* Bosc, & Wats., Dend. Brit., not of Smith; P. *sambucifòlia* Cham. and Don's Mill.
2 péndula *Hort.* - 445
S. *hýbrida péndula* Lod.
P. *spùria sambucifòlia* Hort. Brit.

35. foliolòsa *Wall.* - 445
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§ vii. *Adenórachis* Dec.

36. arbutifòlia *L. fil.* 446
*Cratæ'gus pyrifòlia* Lam. Dict., *Arònia pyrifòlia* Pers. Syn., ?*Cratæ'gus serràta* Poir. Suppl., *Méspilus arbutifolia* Schmidt Arb., Mill. Dict.
2 intermèdia *Lindl.* 446
3 serótina *Lindl.* - 446
4 pùmila - - 446
*Méspilus pùmila* Lodd.

37. (*a.*) melanocárpa 447
P. *arbutifòlia* β Willd. Sp., *Arònia arbutifòlia* Pers. Syn., *Méspilus capitàta* Lodd., M. *floribúnda* Lodd., M. *pùbens* Lodd. Cat.
2 subpubéscens *L.* 447

38. (*a.*) floribúnda *L.* 447
39. (*a.*) depréssa *L.* 448
40. (*a.*) pùbens *L.* - 448
41. (*a*) grandifòlia *L.* 448

§ viii. *Chamæméspilus* Dec.

42. Chamæméspilus 449
*Cratæ'gus Chamæméspilus* Jacq. Austr., *Méspilus Chamæméspilus* Lin. Sp., *Sórbus Chamæméspilus* Crantz Austr.: *the Bastard Quince: niedriger Mispelbaum*, Ger.; *Camemespolo*, Ital.
*Other Species of* P*ỳrus.*—*P.* alnifòlia *Lindl.*, *P.* tomentòsa *Dec. Prod.*, *Málus tomentòsa* Dum. Cours., *P.* rubicúnda *Hoffmans.*

XXI. CYDO'NIA *T.* - 450
The Quince Tree.—P*ỳrus sp.* Lin., *Coignassier*, Fr.; *Quittenbaum*, Ger.; *Cotogno*, Ital.

1. vulgàris *Pers.* - 450
P*ỳrus Cydònia* Lin. Sp., Jacq. Austr.; C. *europæ'a* Sav.
1 pyrifórmis *Hort.* 450
2 malifórmis *Hort.* 450
3 lusitánica *Du H.* 451

2. sinénsis *Thouin* - 451
P*ỳrus sinénsis* Poir. Suppl.

3. japónica *Pers.* - 452
?P*ỳrus japónica* Thunb. Fl. Jap. and Bot. Mag., *Chænomèles japònica* Lindl. Lin. Tr.
2 flòre álbo - - 452
3 fl. sémi-plèno - 452

*Calycanthàceæ.*

I. CALYCA'NTHUS *L.* 452
American Allspice.—*Calycánthi sp.* Lin., Lam., Willd.; *Büttnèria Du Ham.*, not of Lin.; *Beurrèria Ehret Pict.*; *Basterìa Adans. Fam.*; *Pompadoúra Buchoz*: *Calycánthe*, Fr.; *Gewürzstrauch* (*spice shrub*), *Kelch Blume*, Ger.; *Calicanto*, Ital.

1. flóridus *L.* - - 453
The Carolina Allspice.—*C. stérilis* Walt. Car.: *sweet-scented shrub*, in Carolina; *common American Allspice*: *Calycanthe de la Caroline*, Fr.; *Carolinische Kelch Blume*, Ger.; *Pompadur* Ital.
1 oblóngus *Dec.* - 453
2 ovàtus *Dec.* - - 453
3 asplenifòlius *L. C.* 453
4 fèrox *Lodd. Cat.* 453
5 glaúcus *Lod. Cat.* 453
6 inodòrus *Lod. Cat.* 453
7 longifòlius *Lod. C.* 453
8 variegàtus *Lod. C.* 453

2. (f.) glaúcus *Willd.* 454
*C. fértilis* Walt. Car., Lindl. Bot. Reg., Guimp. Abb. Holz., Don's Mill.: *the fertile-flowered American Allspice.*
2 oblongifòlius *Nut.* 454
*C. oblongifòlius* Hort.

3. (f.) lævigàtus *W.* 454
*C. fèrax* Michaux Fl. Bor. Amer., *C. pennsylvánicus* Lod. Cat.

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The Winter Flower.—*Meràtia Nees Act. Soc. Nat. Bonn, Calycánthi sp.* Linn.

1. frágrans *Lindl.* - 455
*Calycánthus præ'cox* Lin. Sp., Ait. Hort. Kew., Curt. Bot. Mag., Lam. Ill.; *Meràtia frágrans* Nees Act. Soc. Nat. Bonn.; *O'bai*, or *Ròbai* Kæmpf. Amer.: *the Winter Flower*; *Calycante de Japon*, Fr.; *Japanische Kelch Blume*, Ger.
2 grandiflòrus *Lind.* 455
3 lùteus *Hort.* - 455
4 parviflòrus *Hort.* 455

*Granatàceæ.*

I. PU'NICA *Tourn.* 456
The Pomegranate Tree.—*The Carthaginian Apple*: *Grenadier*, Fr.; *Granate*, Ger.; *Melograno*, Ital.; *Granados*, Span.

1. Granàtum *L.* - 456
1 rùbrum *Dec. Prod.* 456
2 rùb. fl. pl. *Trew* - 457
3 albéscens *Dec. Pr.* 457

4 albéscens fl.plèno 457
5 flàvum *Hort.* - 457
2. (*G.*) nàna *L.* - 457
P. *americàna nàna* Tourn., P. *Granàtum nànum* Pers.

## *Tamaricàceæ.*

I. *TA'MARIX Desv.* 458
The Tamarix—*The species of Támarix of authors that have 4-5 stamens: Tamaris*, Fr.; *Tamarisken*, Ger.; *Tamaricc*, Ital.
1. gállica *L.* - 458
T. *narbonénsis* Lob. Ic., *Tamariscus gállicus* All., *Tamariscus pentándrus* Lam. Fl. Fr., not of Pall.: *Mirice*, Ital.
*Varieties* - - - 458

II. MYRICA'RIA *Des.* 459
*The species of Támarix of authors that have monadelphous stamens.*
1. germánica *Desv.* 459
*Támarix germánica* Lin. Sp., *Tamariscus decándrus* Lam. Fl. Fr., *Tamarix decándra* Mœnch, *Tamariscus germánicus* Lob. Ic.: *Tamaris d'Allemagne*, Fr.; *Deutschen Tamarisken*, Ger.; *Tamarigia piccola*, Ital.
2 dahùrica *Dec.* - 459
*Támarix dahùrica* Willd. Act. Berol.

## *Philadelphàceæ.*

I. PHILADE'LPHUS *L.* 460
The Mock Orange.—Syringa *Tourn. Inst.*, not of Lin.: *Philadelphus*, Fr.; *Pfeifenstrauch (pipe shrub)*, Ger.; *Filadelpho*, Ital.; *Pipe Privet*, Gerard; *the Syringa* of the gardens.

§ i. *Stems stiff and straight. Flowers in Racemes.*

1. coronàrius *L.* - 460
Syringa *suavèolens* Mœnch Meth.: *wohlriechender Pfeifenstrauch*, Ger.; *Fior angiolo*, Ital.
1 vulgàris *Sch. Han.* 461
2 nànus *Mill. Dict.* 461
3 flòre plèno *L. Cat.* 461
4 variegàtus *L. Cat.* 461
2. (c.) inodòrus *L.* 461
Syringa *inodòra* Mœnch; P. *láxus* in various English gardens: *Silindia senz' odore*, Ital.
3. (c.) Zeýheri Sch. 461
4. verrucòsus *Schrad.* 462
P. *grandiflòrus* Lindl. Bot. Reg., Lodd. Cat. 1836,
5. (v.) latifòlius *Sch.* 462
P. *pubéscens* Cels. Hort., Lois. Herb. Amat.
6. (v.) floribúndus *S.* 463
7. speciòsus *Schrad.* 463
P. *grandiflòrus* of German gardeners, P. *grandiflòrus láxus* of other gardeners.
8. Gordoniànus Lin. 463

§ ii. *Stems more slender, rambling, twiggy, and loose. Flowers solitary, or 2 or 3 together.*

9. láxus *Schrad.* - 464
P. *hùmilis* Hort., P. *pubéscens* Lodd. Cat. 1836.
10. (l.) grandiflòrus 464
P. *inodòrus* Hort., P. *láxus* Lodd. Cat. 1836
11. hirsùtus *Nutt.* - 464
P. *villòsus* Lodd. Cat., P. *grácilis* Lodd. Cat.
12. tomentòsus *Wall.* 465
P. *nepalénsis* Lodd. Cat. 1836, ? P. *triflòrus* Royle.
*Other Species of Philadélphus.*—P. mexicànus *Sch.* - 465

II. DEUTZ*IA* Thun. 465
Philadélphus, in part; *Leptospérmum*, in part.
1. scàbra - - 466
2. (s.) corymbòsa 466
*D. canéscens* Sieboldt, *Philadélphus corymbòsus* Wall.
*Other Species of Deùtzia.*—D. stamìnea *R. Br.* (*Philadélphus stamìneus* W.), D. Brunòn*ia* Wall. (*Leptospérmum scàbrum* W.) - - - 466

III. DECUMA'RIA *L.* 466
*Forsýthia Walt.*, not of Vahl.
1. bárbara *L.* - - 467
*D. radìcans* Mœnch Meth., *D. Forsýthia Michx. Fl. Bor. Amer.*, *D. prostràta* Lodd. Cat.
2 sarmentòsa Dec. 467
*D. sarmentòsa* Bosc. *Forsýthia scándens* Walt.

## *Nitrariàceæ.*

I. NITRA'RIA *L.* - 468
1. Schóberi L. - 468
1 sibírica - 468
*N. sibírica* Pall. Fl. Ross.
2 cáspica - - 468
*N. cáspica* Pall. Fl. Ross.
*Other Species of Nitrària.*—N. tridentàta *Desf.* - - 468.

## *Grossulàceæ.*

I. *RI'BES* L. - - 468
*Grossulària* Tourn.; *Chrysobótrya, Calobótrya, Coreósma*, and Rèbes *Spach: Groseiller*; Fr.; *Johannisbeere*, Ger.; *Kruisbes*, Dutch; *Uva Spina*, Ital.; *Grossella*, Span.

§ i. *Grossulàriæ* Ach. Gooseberries.

*Groseiller à Maquercau*, Fr.; *Stachelbeere Strauch*, Ger., *Kruisbes*, Dutch; *Uva Spina*, Ital.; *Grosella*, Span.

A. *Flowers greenish white.*

1. oxyacanthòides *L.* 469
2. setòsum *Lindl.* 470
3. triflòrum *W.* - 470
R. *stamìneum* Horn. Enum. Hort. Hafn.; R. *t. màjus* Hort.
4. (t.) níveum *Lindl.* 470
5. (t.) Cynósbati *L.* 471
R. *? triflòrum var.*
1 frúctu glàbro - 471
2 frúctu aculeàto - 471
6. (t.) divaricàtum *D.* 471
R. *? triflòrum var.*, R. *? Grossulària var. triflòra subvar.*
7. (t.) irríguum *Dou.* 472
R. *? triflòrum var.*
8. hirtéllum *Michx.* 472
9. grácile *Michx.* 472
10. aciculàre *Smith.* 472
R. *Uva-críspa* Sievers in Pall. Nord. Beytr., ? Pall. Fl. Ross.
11. Grossulària *L.* 473
R. *Uva críspa* Œd. Fl. Dan., *Grossulària hirsùta*, Mill. Dict, R. *Uva-críspa var. 5. sativa* Dec. Fl. Fr.: *Feaberry*, Cheshire and the North of England; *Feabes*, Norfolk; *Grozert*, in Scotland: *Groseiller à Maquereau*, Fr.; *Griselle*, in Piedmont; *gemeine Stachelbeere*, Ger.; *Uva Spina*, Ital.
2 Uva-críspa *Smith* 473
R. *Uva-crispa* Lin. Sp.
*Uva-crispa* Fuch. Hist.
*Uva-spina* Math. Valgr.
R. *Uva crispa var. 1 sylvéstris* Berlandier.
3 spinosíssima *Berl.* 473
4 reclinàta *Berl.* - 473
R. *reclinàtum* Lin. Sp. *Grossulària reclinàta* Mil Dict.
5 Besseriàna Berl. 473
R. *hýbridum* Besser.
6 subinérmis *Berl.* 473
7 macrocárpa *Dec.* 473
8 bracteàta *Berl.* - 473
9 himalayàna - 473
R. *himalayànum* Royle.

*Other Varieties.*—The Red Champagne, or Ironmonger, Horseman's Green-Gage, the Red.

B. *Flowers red.*

12. speciòsum *Pursh* 474
R. *stamìneum* Smith in Rees's Cycl., Dec. Prod.; ? R. *fuchsiòides* Fl. Mex. ic. ined.; R. *triacánthum* Menzies.

13. Menziès*ii* Ph. - 475
R. *fèroz* Smith in Rees's Cycl.
*Other Species.* — R. microphýllum *H. B. et Kunth.*

§ ii. *Botrycárpum* Dec.

14. orientàle *Poir.* - 475
15. saxátile *Pall.* - 475
? R. *alpìnum* Sievers in Pall. Nord. Beytr.
16. Diacántha *L. fil.* 475
17. lacústre *Poir.* - 476
? R. *oryacanthòides* Michx. Fl. Bor. Amer.
2 echinàtum - - 476
R. *echinàtum* Dougl. MS.
R. *armàtum* Hort.

§ iii. Ribèsia *D.*
Currants.

Rìbes *species* of Linnæus and others; *Calobòtrya*, *Coreósma* and Rèbis *Spach: Grosseilles en Grappes*, or *Groseillier commun*, Fr.; *Johannisbeere*, Ger.; *Bessenboom*, Dutch; *Ribes*, Ital.

A. *Flowers greenish, or greenish yellow, or reddish; and Fruit, in a wild State, red.*

18. rùbrum *L.* - 477
R. *vulgàre* N. Du Ham.; *Groseillier commun*, Fr.; *gemeine Johannisbeere*, Ger.; *Aalbessen Boom*, Dutch; *Ribes rosso*, Ital.
1 sylvéstre *Dec. Fr.* 477
2 horténse *Dec.* - 477
R. *rúbrum* Lois. Nouv. Dict.
3 cárneum *Berl. M.* 477
R. *rùbrum domésticum* 2 *báccis cárneis* Wallr. Sched.
4 variegàtum *Dec.* 477
5 álbum *Desf. Cat.* 477
6 fòliis lùteo variegàtis *Duh.* - - 477
7 fóliis álbo variegàtis *Duh.* - - 477
8 sibíricum *Oldaker* 477

19. (r.) alpìnum *L.* 477
R. *dioicum* Masters.
1 stérile *Wallr. Sched.* 477
R. *dioicum* Mœnch Meth.
2 baccíferum *Wallr.* 478
3 pùmilum *Lindl.* - 478
4 fòliis variegàtis - 478

20. (r.) petræ`um *W.* 478
R. *alpìnum* Delarb. Auvergn.: *Ribes corallino* Ital.: *the woolly-leaved Currant the red Marsh-mallow-leaved Currant.*

21. (r.) spicàtum *R.* 478
*The Tree Currant.*

22. (r.) carpáthicum 479
R. *acérrimum* Rochel ex R. et Schultes.

23. (r.) multiflòrum 479
R. *spicàtum* Schultes Œstr. Fl. ed. 1., R. *vitifolium* Hort.

24. (r). albinérvum 479
25. acuminàtum *W.* 479
26. (r.) trífidum *Mx.* 479

B. *Flowers greenish yellow, sometimes with the Tips of the Sepals and Petals red. Fruit black.*

27. nìgrum *L.* - - 480
R. *ólidum* Mœnch Meth.: *Capis* and *Poivrier*, Fr.; *schwartze Johannisbeere*, Ger.; *Ribes nero*, Ital.
2 bácca flávida *Hort.* 481
3 bácca víridi *Hort.* 481
4 fòliis variegàtis *V.* 481
*Selection of Garden Varieties.* — Black Naples, large Black.

28. (n.) tríste *Pall.* - 481
R. *altàicum* Lodd. Cat.

29. (n.) flóridum - 481
R. *nigrum* 2 Lin. Sp., R. *pennsylvánicum* Lam. Dict., R. *recurvàtum* Mich. Fl. Bor. Amer., Ribèsium *nigrum*, &c., Dill. Elth.
2 grandiflòrum *Hort.* 482
R. *rìgens* Mx. Fl. Bor.
3 parviflòrum *Hort.* 482
R. *americànum* Mill.,
R. *pennsylvánicum* Cels.
R. *campanulàtum* Hort.

30. (n.) procúmbens 482
R. *polycárpon* Gmel. Syst. Veg.

31. (n.) prostràtum 482
R. *glandulòsum* Ait. Hort. Kew. ed 1., R. *canadénse* Lod.
2 laxiflòrum - - 482
R. *affi`ne* Dougl. MSS.
R. *laxiflòrum* Pursh Amer. Sept.

32. (n.) resinòsum *P.* 482
R. *orientàle* Catros, R. *reclinàtum* Hort.

33. (n.) punctàtum 482
R. *glandulòsum* R. & P. Fl. Per., not of Ait., Don's Mill.

34. (n.) heterótrichum *Meyer* - - 483
35. (n.) bracteòsum 483
36. (n.) viscosíssimum *Pursh* - - 484
*Coreósma viscosíssima* Spach. Ann. des Scien. Nat. 1835.

37. (n.) hudsoniànum *Richardson* - 484
R. *petiolàre* Dougl. Hort. Tr.

38. glaciàle *Wall.* - 484
39. inèbrians *Lindl* 485
40. cèreum *Dougl.* - 485

C. *Flowers deep red. Fruit black.*

41. sanguíneum *P.* - 486
R. *malvàceum* Smith in Rees's Cycl., *Calobótrya sanguínea* Spach.
2 glutinòsum - 486
R. *glutinòsum* Benth. Hort. Trans.
R. *angústum* Dougl. MS.
3 malvàceum - - 486
R. *malvàceum* Benth.
4 àtro-rùbens *Hort.* 486

42. àtro-purpùreum 487
1 Flowers deep purple. Leaves rather pubescent beneath, but smooth and glabrous above, as well as the branches.
2 Leaves rather pubescent beneath, but hispid from bristles above, as well as the petioles and stems.
3 Flowers paler. Leaves pubescent above, but most pubescent below. Branches smooth.

§ iv. *Symphócalyx* Dec.

43. aúreum *Pursh* - 487
R. *palmàtum* Desf. Cat. Hort. Paris, *Chrysobótrya revolùta* Spach.
1 præ`cox *Lindl.* - 487
R. *frágrans* Lodd. Bot. Cab.
2 villòsum *Dec. Pr.* 488
R. *longiflòrum* Fraser Catal.
3 serótinum *Lindl.* 488

44. (a.) tenuiflòrum 488
R. *aúreum* Colla Hort. Rip. Append., R. *flàvum* Berl. in Dec. Prod., R. *missouriénsis* Hort., *Chrysobótrya Lindleyàna Spach.*
1 frúctu nìgro - - 488
2 frúctu lùteo - 488

45. (a.) flàvum *Coll.* 488
R. *aúreum* 3 *sanguíneum* Lindl. in Hort. Trans., R. *palmàtum* Desf. Hort. Par., R. *aúreum* Ker Bot. Reg., not of Pursh; *Chrysobótrya intermèdia* Spach.

## *Escallon*iàceæ.

I. *I'*TEA *L.* - - 489
*Cedrèla* Lour.; *Diconángia* Michx.
1. virgínica *L.* - 490

II. ESCALLO`NIA M. 490
*Stereóxylon* R. & P. Fl. Per. Prod.
1. rùbra *Pers.* - 490
*Stereóxylon rùbrum* R. & P.
1 glabriúscula *Hook. et Arn.* - - 490
2 albiflòra *Hk. et A.* 491
*E. glandulòsa* Bot. Cab.
3 pubéscens *H. et A.* 491

2. montevidénsis *D.* 491
*E. floribúnda var. β montevidénsis* Schlecht. in Linnæa; *E. bifida* Link et Otto Abbild.
2 floribúnda - - 491
*E. floribúnda* H. B. et K.
3. illinìta *Presl* - 491
*Other Species of Escallònia.* — E. resinòsa *Pers.* (*Stereóxylon resinòsum* Ruiz et Pavon), E. pulveruléntа *Pers.* (*Stereóxylon pulveruléntum* Ruiz et Pavon) - - 491

*Saxifrágeæ.*

Tribe HYDRA'NGEÆ.

I. HYDRA'NGEA *L.* 492
*Hydrángea* and *Horténsia Juss.*: *Idrangea*, Ital.

A. *Species Natives of North America.*

1. arboréscens *L.* - 492
*H. vulgàris* Michx. Fl. Bor. Amer., *H. frutéscens* Mœnch Meth.
2 díscolor *Ser.* - 493
2. (a.) cordàta *Pursh* 493
2 geórgica - - 493
*H. geórgica* Lodd. Cat.
3. nívea *Michx.* - 493
*H. radiàta* Wal. Fl. Car., not of Sm.
2 glabélla *Ser.* - 493
4. quercifòlia *Bartr.* 493
*H. radiàta* Smith Icon. Pict. 12., but not of Walt.

B. *Species Natives of Asia.*

5. heteromálla *Don* 494
6. altíssima *Wall.* - 494
*Other Species of Hydrángea.* — H. Horténsia Sieb. (*H. horténsis* Smith), H. vestita *Wall.* - - - - 494

*Umbellàceæ.*

I. BUPLEU'RUM *T.* 495
The Hare's Ear. — *Tenòria* and *Buprèstis* Spreng. Syst.: *Buptiore*, or *Oreille de Lievre*, Fr.; *Hasenöhrlien*, Ger.

1. fruticòsum *L.* - 495
*Tenòria fruticòsa* Spreng. in Schultes Syst.; *Buprèstis fruticòsa* Spreng. Mag.; *Séseli æthiópicum* Bauh. Pin.; *Sésceli frùtex* Mor. Umb.
*Other Species of Bupleùrum.* — *B.* frutéscens *L.*, *B.* gibraltárica *Lam.* (B. *arboréscens* Jacq. Ic. R.) - - - 495

*Araliàceæ.*

I. ARA LIA *L.* - 496
The Angelica Tree. — *Aràlia sp.* Lin., *Aràliæ vèræ* Blum.

1. spinòsa *L.* - - 496
*Aralie*, Fr. and Ger.; *Angelica spinosa*, Ital.; *Spikenard*, N. Amer.
2. japónica *Thunb.* 497

II. HE'DERA *Swartz* 497
The Ivy. — *Aràlia sect. Gymnópterum* Blum. Bijdr., *Hédera* and *Aràlia sp.* Lin.: *Lierre*, Fr.; *Ephen*, Ger.; *Edera*, Ital.

1. *H*èlix *L.* - - 497
1 vulgàris *Dec.* - 498
2 canariénsis *Dec.* 498
H. *canariénsis* Willd.
*The Irish*, or *Giant, Ivy.*
? 3 chrysocárpa *Dec.* 498
H. *poëtica* C. Bauh.
H. *chrysocárpos* Dalech.
H. *Dionýsias* J. Bauh.
H. *Hèlix* Wall.
4 fòl. argénteis *L. C.* 498
5 fòliis aúreis *L. C.* 498
6 digitàta *Lod. Cat.* 498
7 arboréscens *L. C.* 498

*Hamamelidàceæ.*

I. HAMAME'LIS *L.* 499
The Wych Hazel. — *Trilòpus* Mith. Act. Acad. Nat. Cur. 8. App.: *Hamamelide*, Ital.

1. virgínica *L.* - 499
*Hamamelie de Virginie*, Fr.; *Virginische Zaubernuss*, Ger.; *Pistacchio nera della Virginia*, Ital.
2 parvifòlia *Nutt.* - 499
3 macrophýlla - 499
H. *macrophýlla* Pursh.

II. FOTHERGI'LLA L.

1. alnifòlia *L.* - 500
*F. Gárdeni Michx. Fl Bor. Amer.*, *Hamamèlis monoica* Lin. ex Smith in Rees's Cycl.
1 obtùsa *Sims B.M.* 500
*F. major* Bot. Cab.
*F. alnifòlia* Lin. fil. Sup.
2 acùta *Sims* - - 500
*F Gárdeni Jacq. Ic. Rar.*
3 màjor *Sims B. M.* 500

*Cornàceæ.*

I. Co'RNUS *L.* - 501
The Dogwood.—*Cornouiller*, Fr.; *Hartriegel*, Ger.; *Corniolo*, Ital.

§ i. *Nudifloræ* Dec.

A. *Leaves alternate.*

1. alternifòlia *L.* - 501
C. *altérna* Marsh.

B. *Leaves opposite.*

2. sanguínea *L.* - 502
C. *fœ'mina* Rai. Syn., *Virga sanguínea* Matth. Valgr.: *Female Cornel, Dogberry Tree, Hound Tree, Hound's-berry Tree, Prickwood, Gaten*, or *Gatten Tree, Gater* or *Gatter Tree, Catteridge Tree, wild Cornel: Cornouiller sauvage, sanguin*, or *femelle, Puine*, or *Bois punais*, Fr.; *rother Hartriegel*, Ger.; *Sanguinello*, Ital.
2 Púrshii Don's M. 502
C. *sanguínea* Pursh.
3 fòliis variegàtis - 502
3. álba *L.* - - 503
C. *stolonífera* Michx. Fl. Bor. Amer., C. *tatárica* Mill. Icon.
2 circinàta *Don's M.* 503
C. *circinàta* Cham. et S.
3 sibírica *Lodd. Cat.* 503
4. (a.) stricta *L.* - 503
C. *fastigiàta* Michx. Fl. Bor. Amer.; C. *sanguínea* Walt., but not of Lin.; C. *cyanocárpos* Gmel. Syst. Veg., C. *canadénsis* Hort. Par., C. *cærùlea* Meerb. Icon., but not of Lam.
2 asperifòlia - 504
C. *asperifòlia* Lodd. Cat.
3 sempervìrens - 504
C. *sempervìrens* Lod. Cat.
5. (a.) paniculàta *H.* 504
C. *racemòsa* Lam. Dict.; C. *fœ'mina* Mill. Dict.; C. *citrifòlia* Hort. Par.
2 álbida *Ehrh.* - 504
3 radiàta *Pursh* - 504
6. (a.) sericea *L'H.* 504
C. *lanuginòsa* Mich. Fl. Bor. Amer.; C. *álba* Walt. Fl. Car., but not of Lin.; C. *cærùlea* Lam. Dict.; C. *Amòmum* Du Roi Harbk.; C. *rubiginòsa* Ehrh. Beitr.; C. *ferruginea* Hort. Par.; C. *candidissima* Mill.; C. *cyanocárpos* Mœnch, but not of Gmel.
2 oblongifòlia *Dec.* 504
C. *oblongifòlia* Rafin.
7. (a.) circinàta *L'H.* 505
C. *tomentòsa* Michx. Fl. Bor. Amer., C. *rugòsa* Lam. Dict., C. *virginiàna* Hort. Par.
8. oblónga *Wall.* - 505
C. *paniculàta* Hamilt. ex D. Don Prod. Fl. Nep.

§ ii. *Involucràtæ* Dec.

9. más *L.* - - 505
The Cornel, or Cornelian Cherry Tree. — C. *máscula* L'Hérit. Corn., *Long Cherry Tree: Cornelia, Cornouiller mâle, Cornes, Corneilles*, Fr.; *Kornel Kirsche, Hartriegel*, Ger.; *Corgnolo*. Ital.
2 fructu cèræ colòris *N. Du Ham.* 506
3 variegàtus - 506
10. flórida *L.* - 507
*Virginian Dogwood.*
*Other Species of Córnus.* — C. grándis *Schlect.*, C. officinàlis 507

II. BENTHA'MIA L. 507
*Córnus sp.* Wall., Dec., and G. Don.

1. fragífera *Lindl.* - 508
*Córnus capitàta* Wall. in Roxb. Fl. Ind., Don's Mill.: *Chung-wa*, in Nepal; *Bhumowro*, in Serampore.
*Other Species of Benthàmia.*—B. japónica - - - 508

*Loranthàceæ.*

I. *Vi'scum L.* - 508
The Mistletoe.—*Missceldine, Gui*, or *Guy*, Fr.; *Mistl*, or *Missel*, Ger.; *Visco*, or *Vischio*, Ital.; *Legamadoga*, Span.
1. álbum *L.* - - 509

II. Lora'nthus *L.* 510
1. europæ'us *L.* - 511

III. *Au'cuba* Thunb. 511
Aúcuba *Kæmpf. Amœn.*, *Eùbasis* Salisb. Prod.
1. japónica *Thunb.* - 511
*Eùbasis dichótomus* Salisb. Prod.: *spotted-leaved Laurel, Japan Laurel.*

*Caprifoliàceæ.*

Sect. I. *Sambu'ceæ.*

I. *Sambu'cus Tourn.* 513
The Elder.—*Phyteùma* Lour. Coch., but not of Lin.

A *Leaves pinnate. Flowers cymose, or corymbose.*

1. nìgra *L.* - - 513
*Bourtry*, or *Bour Tree, Arntree*, Scotch; *Sureau*, Fr.; *Hollander*, Ger.; *Sambuco*, Ital.; *Sauco*, and *Sambuco*, Span.; *Flaeder*, Swed.; *Hylde*, Dan.
2 viréscens *Dec.* - 514
S. *viréscens* Desf. Arb. Fr.
3 leucocárpa - - 514
4 laciniàta - - 514
S. *laciniàta* Mill. Dict.
5 rotundifòlia - 514
6 monstròsa - - 514
S. *monstròsa* Hort.
7 fòliis argénteis - 514
8 fòliis lùteis - 514
2. canadénsis *L.* - 515

B. *Leaves pinnate. Flowers panicled.*

3. racemòsa *L.* - 515
S. *montàna* Cam. Epit.; S. *cervini* Tabern.: *Sambuco montana*, Ital.
2 laciniàta *Koch* - 515
3. (r.) pùbens *Mx.* - 516
S. *racemòsa* Hook. Fl. Bor. Am., not of Lin.; S. *pubéscens* Lodd. Cat.
2 heptaphýlla *Hook.* 516

II. *Vibu'rnum L.* - 515
*O'pulus, Vibúrnum*, and *Tinus*, Tourn. Inst.; *Vibúrnum* and *O'pulus* Mœnch Meth.: *Viorne*, Fr.; *Schneeball*, Ger.; *Viburno*, Ital.

§ i. *Tìnus* Tourn.

1. *T*ìnus *L.* - - 516
The Laurustinus.—V. *laurifórme* Lam. Fl. Fr., *Tìnus* Tourn. Inst., *Tinus laurifòlia* Borkh. in Rœm. Arch.: *the Laurustine, wild Baie Tree*, Gerard: *Viorne, Laurier Tin*, Ital.; *Lorbeerartiger Schneeball*, or *Schwalkenstrauch*, Ger.; *Lagro salvatico*, and *Lauro Tino*, Ital.
2 hírta *Ait. H. Kew.* 517
V. *Tinus* Mill Dict.
V. *lùcidum* Mill., Pers., Schultes.
3 lùcida *Ait.* - - 517
4 virgàta *Ait.* - 517
5 strícta *Hort.* - 517

§ ii. *Vibùrnum* Tourn.

2. Lentàgo *L.* - - 517
*Tree Viburnum, Canada Viburnum: Viorne luisante*, Fr.; *Birn-blättriger Schneeball, Canadische Schwalkenbeerstrauch, Schwalkenstrauch*, Ger.

3. (L.) *p*runifòlium *L.* 518
V. *Lentàgo* Du Roi.

4. (L.) *p*yrifòlium *P.* 518

5. (L.) nùdum *L.* - 519
V. *pyrifòlium* Poir.
2 squamàtum - 519
V. *squamàtum* Willd. En.

6. *cassino*ìdes *L.* - 519
V. *punctàtum* Rafin.

7. (*c.*) lævigàtum *W.* 519
V. cassino*ìdes* Du Roi Harbk., V. *lanceolàtum* Hill, Hort. Kew., V. *carolinianum* Hort., Cassìne *parágua* Lin. Mant., C. *corymbòsa* Mill. Icon.: *Thè americano*, Ital.

8. Lantàna *L.* - - 520
The Wayfaring Tree.—V. *tomentòsum* Lam. Fl. Fr.: *wild Guelder Rose, pliant-branched Mealy Tree: Viorne cotonneuse, Camara, Viorne commune, Coudre-moinsinne, Moncienne*, Fr.; *Schlingstrauch, wolliger Schneeball*, or *Schwalkenstrauch*, Ger.; *Lentaggine*, Ital.
2 grandifòlia *Ait.* - 520
V. *L. latifòlia* Lodd. Cat.
3 fòliis variegàtis - 520

9. (L.) lantanòìdes - 520
American Wayfaring Tree.—V. *Lantàna β grandifòlia* Ait. Hort. Kew., ed. 1.; V. *grandifòlium* Smith in Rees's Cycl.; V. *Lantàna canadénsis* Pers. Ench.: *Hobble Bush*, Amer.

10. (L.) dahùricum - 521
*Lonícera mongólica* Pall. Fl. Ros. *Córnus dahùrica* Laxm.

11. (?L.) cotinifòlium 521
V. Mullàha *Ham. in D. Don Prod. Fl. Nep.*

12. dentàtum *L.* - 521
V. *dentàtum lùcidum* Ait. Hort. Kew., V. *dentàtum glabéllum* Mx. Fl. Bor. Amer.: *Arrow-wood: Viorne dentée*, Fr.
*Varieties.*—*V.* d. pubéscens, *V.* d. fòliis variegàtis, *V.* acuminàtum, *V.* longifòlium and *V.* montànum are in Messrs. Loddiges's collection - - - 522

13. (d.) pubéscens - 522
V. *dentàtum β pubéscens* Ait. Hort. Kew., V. *dentàtum semitomentòsum* Mich. Fl. Bor. Amer., V. *tomentòsum* Rafin. Med. Rep., V. *villòsum* Rafin. in Desf. Journ., V. *Rafinesquiànum Schultes Syst.*

14. nítidum *Ait.* - 522

§ iii. *O'pulus* Tourn.

15. *O'*pulus *L.* - - 522
The Guelder Rose.—V. *tobàtum* Lam. Fl. Fr., *O'pulus glandulòsus* Mœnch Meth., *O'pulus* Raii Syn., *Sambàcus aquática* Bauh. Pin.: *Marsh Elder, Rose Elder, Water Elder: Viorne-Obier, l'Obier d'Europe*, Fr.; *Schwalkenbeerstrauch, Wasserholder, Schneeballe*, Ger.; *Maggi*, Ital.
2 stérilis *Dec. Prod.* 523
V. O. ròseum Rœm. et S.
*The Snow-ball Tree, or Guelder Rose.*
*Rose de Gueldres, Pelotte de Neige, Boule de Neige, Poire molle*, Fr.
*Schneeballe*, Ger
3 fòliis variegàtis - 523
4 nàna *Hort.* - 523

16. (*O.*) *a*cerifòlium 523

17. (*O.*) orientàle *P.* 524
*O'pulus orientàlis folio amplissimo tridentàto* Tourn. Cor.

18. (*O.*) Oxycóccos 524
V. *opulòìdes* Mühl. Cat., V. *trilobum* Marsh. Arb., V. *O'pulus américàna* Ait. Hort. Kew.
2 subintegrifòlius *H.* 524
3 móllis - - 524
V. *mólle* Mx. Fl. Bor. Am.

19. (*O.*) edùle *P.* - 524
V. *O'pulus edùlis* Michx. Fl. Bor. Amer.

Sect. II. Lonice'reæ.

III. Diervi'lla Tou. 525
*Lonícera sp.* L.; *Weigèlia Thunb. Fl. Jap.*, *Weigèla Pers. Ench.*

1. canadénsis *W.* - 525
*Lonícera Diervílla Lin. Mat. Med.*, *D. Tournefórtii Michx. Fl. Bor. Amer.*, *D. hùmilis* Pers. Ench., *D. lùtea* Pursh Sept., *D. trifida* Mœnch Meth., *D. acadiénsis* Du Ham. Arb.

IV. LONI'CERA Desf. 526
The Honeysuckle.—*Lonicera sp.* Lin. and many authors; *Caprifolium* and *Xylósteum* Juss. Gen., *Xylósteum Caprifolium*, *Chamæcérasus*, *Periclýmenum* Tourn. Inst.; *Caprifolium* and *Lonicera Rœm. et Schult. Syst.*, *Lonicera* and *Xylósteum* Torrey Fl. U. S.: *Chèvrefeuille*, Fr.; *Geissblätt*, *Honeiglume*, and *Lonicere*, Ger.

§ i. *Caprifòlium* Dec.

*Caprifòlium* Juss. Gen., *Lonicera Torr. Fl. Un. St.*, but not of Schult.

A. *Flowers ringent.* — *Caprifòlium* Tourn. Inst.

1. *Periclýmenum L.* 527
The Woodbine.—*Periclýmenum* Ger. Em., *Periclýmenum germánicum* Riv. Mon. Irr., *P. hortènse* Gesn. Ic. Pict., *Caprifòlium Periclýmenum* Rœm. et Schult., *Caprifòlium sylvátícum* Lam. Fl. Fr., *Caprifòlium* Raii. Syn.: *Woodbind: Chèvrefeuille des Bois*, Fr.; *wildes gemeines Geissblätt*, Ger.; *gewoone Kamperfoelie*, Dutch; *Madre Selva*, Ital. and Span.
2 serótinum *Ait.* - 527
*Periclý. germánicum* Mill.
3 bélgicum - - 527
*Periclý. germânicum* Mill.
4 quercifòlium *Ait.* 528

2. *Caprifòlium L.* - 528
*Periclýmenum perfoliàtum* Ger. Emac.: *Chèvrefeuille des Jardins*, Fr.; *Durchwachsene*, Ger.; *Caprifolio* Ital,

3. (*C.* etrúsca) *San.* 528
*L. etrúsca* Hort. Fl. Austr., *Caprifòlium etrúscum* Kæm. et Schult. Syst., *Periclýmenum* Gouan Hort., *Caprifòlium itálicum perfoliàtum præcox* Tourn. Inst.: *the Italian Honeysuckle: Mansorino*, Ital.

4. impléxa *Ait.* - 529
The Minorca Honeysuckle.—*Caprifòlium impléxum* Rœm. et Schult. Syst.: *Vincibosco sempreverde*, Ital.
2 baleárica *Viv.* - 529
*Caprifòlium baleári.* Dum.
*L. balearica* Dec.
*L. Caprifolium* Desf.

5. flàva *Sims* - 529
*Caprifòlium flàvum* Ell. Sketch., *Caprifòlium Fràseri Pursh Sept.*

6. (f.) pubéscens *S.* 529
*Caprifòlium pubéscens* Goldie in Phil. Journ., *L. hirsùta* Eaton Man. Bot., *L. Góldii Spreng. Syst.*

7. parviflòra *Lam.* 530
*Caprifòlium parviflòrum* Pursh Sept., *Lonicera dioica* Lin. Syst. Veg., *L. mèdia* Murr. Nov. Comm. Gött., *Caprifolium bracteòsum* Michx. Fl. Bor Amer., C. *dioicum* Rœm. et Schult. Syst., C. *glaúcum* Mœnch: *glaucous Honeysuckle: Chevrefeuille dioique*, Fr.; *Meergrünes Geissblätt*, Ger.; *Middelboore Kamperfoelie*, Dutch.

8. (p.) Douglàsii D. 530
*Caprifolium Douglàsii Lindl. Hort. Trans.*

9. hispídula *Doug.* 531
*Caprifòlium hispidulum* Lin. Bot. Reg.

10. gràta *Ait.* - - 531
*Caprifòlium gràtum* Pursh Sept., *L. virginiàna* Marsh Arb., ? *Periclýmenum americànum* Mill. Dict., *Caprifolio sempreverde*, Ital.

B. *Limb of Corolla nearly equal.* — *Periclýmenum* Tourn.

11. sempervìrens *Ait.* 531
*Caprifòlium sempervìrens* Michx. Fl. Bor. Amer., *Periclýmenum sempervìrens* Mill. Dict., *Alatérnus sempervìrens* Kœhl. ex Steud.; *Periclýmenum virginiacum* Riv. Mon.: *Madre Selva de Virginia*, Ital.
2 màjor *Ait.*, *Curt.* 532
3 mìnor *Ait.*, *Sims* 532
*L. connàta* Meerb.
4 Brównii Gordon 532

12. ciliòsa *Poir.* - 532
*Caprifòlium ciliòsum* Pursh Fl. Amer. Sept., *L. ciliàta* Dietr. Lex. Suppl.

13. occidentàlis *H.* 532
*Caprifòl. occidentàle* Lindl. Bot. Reg., *Caprifòlium ciliòsum* Dougl. MSS.

*Other Species.* — L. pilòsa *W.*, *Dec. Prod.* (*Caprifòlium villòsum* H. B. et Kunth Nov. Gen. Amer.) - - 533

§ ii. *Xylósteum* Dec.

*Xylósteon* Juss. Gen., *Lonicera Rœm. et Schult. Syst.*, *Xylósteon* and *Chamæcérasus* Tourn. Inst., *Xylósteum* and Isìka *Adans. Fam.*, *Cobœ'a Neck. Elem.*: *the Fly Honeysuckle: Hackenkirsche*, Ger.; *Hondsbeziën* or *Hondskarsen*, Dutch.

A. *Ovaries and Berries altogether distinct. Stems twining. Flowers irregular.*— Nintoòa *Dec. Prod.*

14. confùsa *Dec.* - 533
Nintoòa *confùsa* Swt. Hort. Brit., *Lonicera japónica* Andr. Bot. Rep.; Nintoo, Sintoo, *Kæmpf. Amœn.*; *Caprifòlium japónicum* Loud. Hort. Brit. 1st ed.

15. longiflòra *Dec.* 534
*Caprifòlium longiflòrum* Sabine, Nintoòa *longiflòra* Swt. Hort. Brit. ed. 2., *Caprifòlium japónicum* D. Don Prod. Fl. Nep., *Caprifòlium nepalénse* Loud. Hort. Brit.

16. japónica *Thunb.* 534
Nintoòa *japónica* Swt. Hort. Brit. ed. 2., *L. chinénsis* Hort. Kew., *L. flexuòsa* Lod. Bot. Cab., *L. glabràta* Roxb., *Caprifòlium chinénse* Loud. Hort Brit., C. *flexuòsum* Hort.

*Other Species.* — L. longifòlia *Hort.* - - - - 335

B. *Berries distinct, or usually connate together at the Base, and diverging at the Tip. Corolla hardly gibbous at the Base, or equal. Erect deciduous Shrubs.*—*Chamæcérasus* Dec.

17. tatárica *L.* - 535
*Xylósteum cordàtum* Mœnch Meth., *X. tatáricum* Dum. Cours.
2 albiflòra *Dec.* - 535
*L. pyrenàica* Willd.
3 rubriflòra *Dec.* 535
*L. grandiflòrum* Lodd.
*L. sibírica* Hort. ex Pers. Ench.
4 lùtea *Lodd. Cat.* 535
5 latifòlia *Lodd. Cat.* 535

18. (t.) nìgra *L.* - 535
*Caprifòlium ròseum* Lam. Fl. Fr., *Chamæcérasus nìgra* Delarb. Fl. Auv.: *Ciliegia salvatica*, Ital.
2 campaniflòra - 536
*Xylósteum campanifl.* Lod.

19. (t.) ciliàta *Müh.* 536
*Xylósteum ciliàtum* Pursh Sept., *L. tatárica* Michx. Fl. Amer., but not of Lin.; *L. canadénsis* Rœm. et Schult.

20. pyrenàica *L.* - 536
*Caprifòlium pyrenàicum* Lam. Fl. Fr., *Xylósteum pyrenàicum* Tourn. Inst.

21. punícea *Sims* - 536
*Symphoricárpos punícens* Swt.

22. Xylósteum *L.* 537
*Caprifòlium dumetòrum* Lam. Fl. Fr.; *Xylósteum dumetòrum* Mœnch Meth.: *Gisilostio*, Ital.
2 leucocárpum *Dec.* 537
3 xanthocárpum *D.* 537
4 melanocárpum *D.* 537

23. híspida *Pall.* - 537
24. flexuòsa *Thunb.* 537
*L. nìgra* Thunb. Fl. Jap., but not of Lin.; *L. brachýpoda* Dec. Prod.

C. *Berries either distinct or joined together. Corolla very gibbous at the Base. Erect bushy shrubs.* — *Cuphánthæ* Dec.

25. involucràta *Ban.* 538
*Xylósteum involucràtum* Richards in Frank. First Journ.

26. Ledeboùrii Esch. 538

D. *Berries two on each Peduncle, joined together in one,*

*which is bi-umbilicate at the Apex. Erect, bushy, deciduous Shrubs.*— Isikæ *Adans.*

27. alpígena *H.* - 539
*Caprifolium alpinum* Lam. Fl. Fr., *Caprifolium alpigenum* Gærtn. Fruct., Isika *alpigena* Borck., Isika *lucida* Mœnch, *Xylósteum alpigenum* Lodd. Cat.: *Chamæcérasus alpigena* Delarb.: *Cherry Woodbine*: *Heckenkirsche*, Ger.; *Chamæceraso*, Ital.
2 sibírica *Dec. Prod.* 539
*L. sibirica* Vest in Rœm. et Schult. Syst.

28. (a.) microphýlla 539
*L. alpigena* Sievers, *L. montàna* and *L. mexicàna* Hort.

29. oblongifòlia *Hook* 539
*Xylósteum oblongifòlium* Goldie in Edin. Phil. Journ.

30. cærùlea *L.* - 540
*L. villòsa* Mühl. Cat., *Xylósteon villòsum* Mich. Fl. Bor. Amer., *X. Solònis* Eaton Man. Bot., *L. velutina* Dec. Prod., *L. altàica* Pall. Fl. Ross., *Xylósteum cærùleum canadénse* Lam. Dict., *X. canadénse* Du Ham. Arb., *Caprifolium cærùleum* Lam. Fl. Fr., *Chamæcérasus cærùlea* Delarb. Fl. Au., *L. pyrenàica* Pall. Fl. Ross., *L. Pallàsii Led. Fl. Ross. Alt. Ill.*: *Ciliegia alpina*, Ital.

31. orientàlis *Lam.* 540
*L.? caucásica* Pall. Fl. Ross., *L. cærùlea* Güld. Itin., *Chamæcérasus orientàlis laurifòlia* Tourn. Cor.

32. ibérica *Bieb.* - 540
*Xylósteon ibéricum* Bieb. Cent. Pl. Rar. ex Suppl., Lodd. Cat. 1836.

V. SYMPHORICA'RPOS *Dill.* - - 541
The St. Peter's Wort.—*Symphoricárpa* Neck. Elem., *Symphòria* Pers. Ench., *Anisánthus* Willd. Rel., *Lonícera sp.*

1. vulgàris *Michx.* - 541
*Lonícera Symphoricárpos* Lin. Sp., *S. parviflòra* Desf. Cat., *Symphòria conglomeràta* Pers. Ench., *Symphòria glomeràta* Pursh Sept.
2 foliis variegàtis 542
*S. glomeràta fòliis variegàtis* Lodd. Cat.

2. montànus *Humb.* 542
*Symphòria montàna* Spreng. Syst., *S. glaucéscens* Don's Mill.

3. racemòsus *Michx.* 542
The Snowberry.—*Symphòria racemòsa* Pursh Sept., *?S. elongàta* and *S. heterophýlla* Presl in Herb. Hænke, *S. leucocarpa* Hort.

4. occidentàlis *Rich.* 542
*Wolf-berry*, Amer.

VI. LEYCESTE'RIA 543
1. formòsa *Wall.* - 544
*Hamèlia connàta* Puerari MSS.

## *Rubiàceæ.*

I. CEPHALA'NTHUS 544
The Button-wood. — *Cephalante*, Fr.; *Knopflaum*, Ger.; *Cefalanto*, Ital.

1. occidentàlis *L.* - 544
*C. oppositifòlius* Mœnch Meth.: *Swamp Globe Flower*, Amer.
2 brachýpodus *Dec.* 545

## *Compósitæ.*

I. STÆHELI'NA L. 546
*Stæheline*, French and Ger.

1. dùbia *L.* - - 546
*S. rosmarinifòlia* Cass., according to Less. Syn. Gen. Comp.

II. BA'CCHARIS *Br.* 546
*Plinghman's Spikenard: Bacchante*, Fr.; *Baccharis*, Ger.

1. *h*alimifòlia *L.* - 547
Groundsel Tree. — *Senècio arboréscens* Hort. Kew.

2. (*h.*) angustifòlia - 547

III. IVA L. - - 548

1. frutéscens *L.* - 548
*Agérato affìnis peruviàna frutéscens* Pluk. Alm.: *Bastard Jesuits' Bark Tree.*

IV. SANTOLI'NA *T.* 548
The Lavender Cotton.—*Santoline*, Fr.; *Heiligenpflanze*, Ger.; *Santolina*, Ital.

1. *C*hamæcyparíssus 549
Common Lavender Cotton. — *Petit Cyprès*, Fr.; *Abrotano femmina*, Ital.; *Cypressenkraut*, Ger.

*Other Species.*— S. squarròsa *W.*, S. viridis *W.*, and S. rosmarinifòlia *L.* - - - 549

V. ARTEMI'SIA Cas. 549

1. *A*brótanum *L.* - 550
Southernwood.—*Abrótanum mâs* Dod. Pempt.: *Old Man*: *Armoise Aurone, Aurone des Jardins, la Citronelle, la Garderobe*, Fr.; *Eberraute, Wermuth, Stabwurtz*, Ger.; *Abrotano* Ital., Span., and Port.
2 hùmile *Hort.* - 550
3 tobolskiànum *H.* 550
A. *tobolskiàna* Lodd. Cat.
*Other Species of Artemisia.*— *A.* arboréscens *L.*, *A.* procèra *W.*, *A.* Santónica *L.* - 550

VI. SENE'CIO *Les.* - 550
*Cinerària* Less. Syn. Gen. Comp.: *Seneçon*, Fr.; *Kreuzkraut*, Ger.

1. Cinerària *Dec.* - 551
Sea Ragwort.—*Cinerària maritima* Linn. Spec., *Jacobæa maritima* Bonp.: *Sicilian Ragwort*: *Cinéraire*, Fr.; *Meerstrands Aschenpflanze*, Ger.; *Cenerina*, Ital.

VII. MUTI'SIA Cav. 551

1. latifòlia *D. Don* 552
*Other Species.*— M. ilicifòlia, M. inflèxa, M. linearifòlia, M. runcinàta, and M. subspinòsa *Hook. Bot. Misc.*; M. arachnoïdea *Mart.* - - - 552

## *Ericàceæ.*

Sect. I. ERI'CEÆ.

§ i. *Eríceæ normàles.*

I. ERI'CA *D. Don* - 555
The Heath. — *Erica sp.* Lin. and others: *Bruyere*, Fr.; *Heide*, Ger.; *Erica*, Ital.

1. *T*étralix *L.* - - 555
E. *botulifórmis* Sal. in Lin. Soc. Trans., E. *barbárica* Raii Syn., E. *pùmila* Park. Theatr.; E. *Tétralix rùbra* Hort. Eric. Woburn.: *the cross-leaved Heath*: *Sumpf Heide*, Ger.; *Scopa di Fior rosso*, Ital.
1 rùbra *Hort. Eric. Woburn.* - - 556
2 cárnea *Loud. H. B.* 556
3 álba *Hort. Eric. Woburn.* - - 556
4 Mackaiàna - 556
E. *Mackaiàna Bot. Fl Hib.*

2. cinèrea *L.* - - 556
E. *mutábilis* Salisb. in Lin. Trans., E. *hùmilis* Neck. Gall., E. *tenuifòlia*, Ger., E. *cinèrea rùbra* Hort. Eric. Woburn.: *Scopa*, Ital.
2 atropurpùrea *Lodd. Bot. Cat.* - - 556
3 álba *Lodd. Cat.* - 556
4 pállida *Lodd. Bot. Cab.* - - - 556
5 carnéscens *L. Cat.* 556
6 prolífera *Lod. Cat.* 556
7 stricta *Lodd. Cat.* 556

3. austràlis *L.* - - 556
E. *pistillàris* Sal. in Lin. Trans.

4. ciliàris *L.* - - 557

II. GYPSOCA'LLIS *S.* 557
The Moor Heath. — *Ericæ sp.* of other authors.

1. vàgans *Sal.* - - 557
Cornish Moor Heath.—E. *vàgans* Lin. Mant., E. *vàga* Sal. in Lin. Trans., E. *multifloràa* Huds. Fl. Angl., E. *didyma* Stokes in Withering's Bot.

Arrang., E. *purpuráscens* Lam. Dict.
2 pállida - - 557
3 rubéscens *Bree* - 557
4 purpuráscens *B.* - 558
5 álba - - 558
6 tenélla - - 558

2. multiflòra *D. Don* 558
Erìca *multiflòra* Lin. Sp., E. *juniperifòlia*, &c., Garidel Aix; E. *multiflòra longipedicellàta* Wendl. Eric., E. *pedunculàris* Presl: *Scopa grande rosso*, Ital.

3. cárnea *D. Don* - 558
E. *cárnea* Lin. Sp., E. *herbàcea* Lin. Dis., E. *saxátilis* Sal. in Lin Trans.

4. mediterrànea *D. D.* 558
E. *mediterrànea* Lin. Mant., E. *lúgubris* Sal. in Lin. Trans.

III. CALLU'NA *Sal.* 559
Erìca *sp.* Lin and others.

1. vulgàris *Sal.* - - 559
Ling, *or Heather.*—Erìca *vulgàris* Lin. Sp.: *la Bruyère*, Fr.; *Heide*, Ger.; *Lyng*, Dan.; *Ljung*, Swed.; *Brentoli*, *Cecchia*, or *Scopa*, Ital.; *Brezo*, Span.; *Urze*, Port.; *Weresk*, Russ.
1 purpùrea - 559
2 spùria - - 559
3 decúmbens - 559
4 tomentòsa - 559
5 álba - - 559
6 flòre plèno - 559
7 fòliis variegàtis - 559
8 aúrea - - 559
9 coceínea - - 559
10 spicàta - - 559
11 [àtro-rùbens] - 559
12 [serótina] - 559

§ ii. *Andromèdeæ.*

IV. ANDRO'MEDA L. 560
*Polifòlia* Buxbaum Cent., *Andrómeda sp. L.*

1. polifòlia *L.* - 560
Moorwort. — *Rhododéndron polifolium* Scop. Carn.: *wild Rosemary*, *Poly Mountain*, *Marsh Cistus*, *Marsh Holy Rose*: *Andromède*, Fr. and Ger.
1 angustifòlia *Bot.* 560
2 ericòides - - 560
3 grandiflòra *Lod.* 560
4 latifòlia *Lod.* - 561
5 mínima - - 561
6 revolùta *Lod.* - 561
7 scótica - - 561
8 stricta - - 561

2. rosmarinifòlia *P.* 561
A. polifòlia Michx. Fl. Bor. Amer.

*Other Species of Andrómeda.*—Andrómeda Drummóndii Hook. - - 561

V. CASSI'OPE Don 561
*Andrómeda sp.* Lin., Pall.

1. hypnòides *D. D.* 561
*Andrómeda hypnòides* Lin. Sp.

2. tetragòna *D. Don* 562
*Andrómeda tetragòna* Lin. Sp.

3. lycopodiòides *D.* 562
*Andrómeda lycopodiòides* Pall. Fl. Ross.

4. ericòides *D. Don* 562
*Andrómeda ericòides* Pall. Ross.

*Other Species of Cassiope.*—C. fastigiàta *D. Don*, C. Redówski G. Don. - - - 562

VI. CASSA'NDRA D. 562
*Andrómeda sp.* Lin. and others.

1. calyculàta *D. D.* 563
*Andrómeda calyculàta* Lin. Sp.
1 ventricòsa *Sims* 563
2 latifòlia *Lod.* - 563
3 nàna *Sims* - 563

2. (c.) angustifòlia 563
*Andrómeda calyculàta β angustifòlia* Ait. Hort. Kew., *A. angustifòlia* Pursh Fl. Amer. Sept., *A. crispa* Desf. et Link.

VII. ZENO'BIA Don 563
*Andrómeda sp.* Michaux.

1. speciòsa *D. Don* 564
*Andrómeda speciòsa* Michx. Fl. Bor. Amer.
2 nítida - - 564
*A. s. nitida* Pursh.
*A.* cassinefòlia Vent.
3 pulverulénta - 564
*A. s. pulverulénta* Pursh.
*A. pulverulénta* Bartram.
*A.* cassinefòlia *β* Vent.
*A. speciòsa γ glaúca* Wats.
*A. dealbàta* Lindl.
*A. ovàta* Soland.

VIII. LYO'NIA N. 564
*Andrómeda sp.* Lin. and various authors.

A. *Leaves evergreen.*

1. ferrugínea *Nutt.* 565
*Andrómeda ferrugínea* Walt. Fl., *A. ferrugínea β fruticòsa* Michx. Fl. Bor. Amer.

2. rígida *Nutt.* - 565
*Andrómeda ferrugínea* Willd. Sp., *A. ferrugínea arborèscens* Michx. Fl. Bor. Amer., *A. rígida* Pursh Fl. Amer. Sept.

3. marginàta *Don* 565
*Andrómeda marginàta* Du Ham.; *A. coriàcea* Willd. Spec., Ait. Hort. Kew.; *A. lúcida* Lam. Encyc.; *A. mariàna* Jacq. Icon. Rar.
2 rùbra *Lod.* - 566

B. *Leaves deciduous.*

4. mariàna *D. Don* 566
*Andrómeda mariàna* Lin. Sp.
2 oblónga *Swt.* - 566

5. racemòsa *D. D.* 566
*Andrómeda racemòsa* Lin. Sp., L'Hérit. Stirp.; *A. paniculàta* Walt. Car., Gronov. Virg.

6. arbòrea *D. Don.* 566
*Andrómeda arbòrea* Lin. Sp.

7. paniculàta *Nutt.* 567
*Andrómeda paniculàta* Lin. Sp.

8. salicifòlia *Wats.* 567

9. (p.) frondòsa *N.* 567
*Andrómeda frondòsa* Pursh Fl. Amer. Sept.

10. (p.) multiflòra 567

11. (p.) capreæfòlia 568

IX. LEUCOTHOE D. 568
*Andrómeda sp.* of previous authors.

1. axillàris *D. Don* 568
*Andrómeda axillàris* Solander in Hort. Kew., *A. Catesbæ'i Walt. Car.*
2 longifòlia - - 569
*Andrómeda longifòlia* Pur. *A. Wálteri Walt.*

2. spinulòsa *G. Don* 569
*Andrómeda spinulòsa* Pursh Sept.; ? *A. Catesbæ'i Walt. Fl. Car.*

3. acuminàta *G. D.* 569
*Andrómeda acuminàta* Ait. Hort. Kew., *A. lúcida* Jacq. Icon. Rar., *A. populifòlia* Lam. Encyl., *A. reticulàta* Walt. Fl. Car., *A. formosissima* Bartr., *A. laúrina* Michx. Fl. Amer.: *Pipe-stem-wood*, Amer.

4. floribúnda *D. D.* 569
*Andrómeda floribúnda* Lyon Herb. Sept.

5. spicàta *G. Don* 569
*Andrómeda spicàta* Wats. Dend. Brit.

X. PI'ERIS *D. Don* 570
*Andrómeda sp.* Wallich.

1. ovalifòlia *D. Don* 570
*Andrómeda ovalifòlia* Asiat. Res., *A. capricida* Hamilt. MSS.

XI. PHYLLO'DOCE 570
*Andrómeda sp.* L., *Menzièsia sp.* Swartz, Smith.

1. taxifòlia *Sal.* - 571
*Menzièsia cærùlea* Swz. in Lin. Trans., *Andrómeda cærùlea* Lin. Sp., *A. taxifòlia* Pall. Fl. Ross., *Erica cærùlea* Willd. Sp.

2. empetriformis *D.* 571
*Menzièsia empetriformis* Smith in Lin. Trans.

XII. BRYA'NTHUS 571
*Andrómeda sp.* Lin., *Menziesia Swartz*, *Pursh*; Erica *sp.* Thunb.

1. Gmèlini D. Don 571
*Menziesia bryántha* Swartz in Lin. Trans., *Andrómeda bryántha* Lin. Mant., *Erica bryántha* Thunb. Diss., *Bryánthus rèpens scrypyllifòlia flòre* ròseo Gmel. Sib.

2. Stélleri D. Don 572
*Andrómeda Stelleriàna Pall. Fl. Ross.*; *Menziesia empetriformis* Pursh Fl. Amer. Sept., but not of others.

XIII. DABŒ'CIA D. 572
*Erica sp.* Lin., *Andrómeda sp.* Lin., *Menziesia sp.* Juss.

1. polifòlia *D. Don* 572
*Andrómeda Dabœcia Lin. Syst.*, *Erica Dabœcia Lin. Sp.*, *Menziesia Dabœcia Dec. Fl. Gall.*, *Erica hibérnica, &c.* Raii Hist. 3 Suppl., *Menziesia polifòlia* Juss. Ann. Mus., *Vaccinium cantábricum* Huds. Fl. Ang.: *Irish Whorts, Cantabrian Heath, St. Dabeoc's Heath.*

2 flòre albo *Swt. Brit. Fl. Gard.* - 572

XIV. A'RBUTUS *C.* 573
The Strawberry Tree.— *Andráchne* Clus., *Arbutus sp.* Lin. Gen.: *Arbousier*, Fr.; *Sandbeere*, Ger.; *Abbatro*, Ital.

1. U'nedo *L.* - 573
*L'Arbousier commun, Arbousier des Pyrénées*, or *Fraisier en Arbre*, Fr.; *Erdbeereartige Sandbeere*, Ger.; *Komaà*, Mod. Greek.

1 álbus *Ait. H. K.* 573
2 ruber *Ait. H. K.* 573
3 plènus *Ait. H. K.* 573
4 schizopétalus 574
5 integrifòlius *Sims* 574
6 críspus - - 574
7 salicifòlius - 574

2. hýbrida *Ker* - 574
A. *andrachnòides* Link Enum.
2 Míllerí Mayes - 575

3. Andráchne *L.* 575
A. *integrifòlia* Lam., *Andráchne Theophrásti Clus. Hist.*, *Andráchne* Park. Theatr., *Andrachnē* Theophrastus: *Adrachla*, Modern Greek.
2 serratifòlia - 575
A. *serratifòlia* Nois.

4. procèra *Dougl.* 576
5. tomentòsa *Pursh* 576
*Arctostáphylos tomentòsa* L. Bot. Reg.
2 nùda *Hook. et Arn.* 576

6. densiflòra *H. B. et K.* 576
*Other Species of* A'rbutus.—*A.* speciòsa *Dickson, Gard. Mag.* 1840; *A.* nepalénsis *Royle.*

XV. ARCTOSTA'PHYLOS *Adans.* - 577
The Bearberry.— *U'va-úrsi* Dod., Tourn.; *A'rbutus sp.* Lin.

1. U'va-úrsi *Spreng.* 577
*A'rbutus U'va-úrsi* Lin. Sp., *A'rbutus buxifòlia* Stokes Bot.; *U'va-úrsi buxifòlia* Sal. in Grays Arran.: *Bearberries*, and *Bearwhortleberries*, Eng.: *Barentraube*, or *Barenbeere*, Ger.; *Beerenduinf*, Dutch; *la Basserole*, Fr.; *Uva d'Orzo*, Ital.; *Uva de Oso*, Span.; *Uva de Orso*, Port.; and *Uva Ursi*, in the works of most old botanists.
2 austrìaca *Lodd.* 577

2. alpìna *Spreng.* - 578
*A'rbutus alpina* Lin. Sp.

*Other Species of Arctostáphylos.—A.* púngens *H. B. et K.* 578

XVI. PERNE'TTYA 578

1. mucronàta *Gaud.* 578
*A'rbutus mucronàta* Lin. fil Suppl.
2 Cummíngii - 579
*P. Cummingii Lodd.*

2. pilòsa *G. Don* 579
*A'rbutus pilòsa* Graham.

*Other Species of Pernéttya*— P. microphýlla *Gaud.* (*A'rbutus microphýlla* Forst., *A. serpyllifòlia* Lam.), P. pùmila *Gaudich.* (*A rbutus pùmila* Forst.) - - 579

XVII. GAULTHE'RIA L.

1. procúmbens *L.* - 579
*Partridge Berry, Mountain Tea, Spring Winter-Green* of Smith's Hist. of Nova Scotia.

2. *Shállon* Pursh - 580

XVIII. EPIGÆ'A *L.* 580
*Memécylum* Mich. Gen.: *May Flower*, Nova Scotia.

1. rèpens *L.* - 580
2 rubicúnda *Swt.* 581

XIX. PHALEROCA'RPUS *G. Don* - 581
*Vaccínium* Lin., *Gaulthèria Pursh*, *Oxycóccus* Nutt., *A'rbutus* Lam.

1. serpyllifòl. *G. Don* 581
*Vaccínium hispidulum* Lin. Sp., *Gaulthèria serpyllifòlia* Pursh Sept., *A'rbutus filiformis* Lam. Dict., *Oxycóccus hispídulus* Pers.

XX. CLE'THRA *L.* 581
Cuellària *Ruiz et Pav. Syst.*

1. alnifòlia *L.* - 582
C. *alnifòlia var. a denudàta* Ait. Hort. Kew.

2. (*a.*) tomentòsa *L.* 582
C. *alnifòlia β pubéscens* Ait. Hort. Kew., C *incàna* Pers. Ench.

3. (*a.*) paniculàta *Ait.* 582

4. (*a.*) acuminàta *M.* 582
*C. montàna* Bartr. Cat.

5. (*a.*) scàbra *Pers.* 583

Sect. II. RHODO'REÆ.

XXI. RHODODE'NDRON
Rose Bay.—*Azalea sp.* of authors, *Rhodòra* Lin., *Chamærhododéndros* Tourn. Inst.: *Rhododendron*, Fr., Ital., *and* Span.; *Alpbalsam*, Ger.

§ i. *Pónticum* D. Don.

1. pónticum *L.* - 584
2 obtùsum *Wats.* 584
3 myrtifòlium *Lodd.* 584
4 Smíthii Swt. Brit. 584
5 Lòwii Gard. Mag. 584
6 azaleòides - - 584
R. *azaleòides* Desf.
R. *p. β* subdecíduum *Andr.*
7 fràgrans *Chandler* 585
*Nursery Varieties* - - 585

2. máximum *L.* - 585
*American Rose Bay.*
2 álbum *Hort.* - 585
3 hýbridum *Hook.* 585
R. *fràgrans* Hort.
R. *hýbridum* Lodd. Cat.

3. (m.) purpùreum 586
R. *máximum γ purpùreum* Pursh Fl. Am. Sept., R. *pónticum macrophýllum* Lod. Cat.

4. Púrshii G. Don 586
R. *máximum β álbum* Pursh Fl. Amer. Sept.

5. catawbiénse *Mx.* 586
2 Russellìànum 587
3 tigrìnum *Hort.* - 587

6. chrysánthum *L.* 587
R. *officinàle* Salisb.

7. caucásicum *Pall.* 587
2 stramíneum *Hook.* 587
3 pulchérrimum *L.* 587
4 Nobleànum Hort. 588

8. punctàtum *Andr.* 588
R. *ferrugineum var. mìnus* Pers. Ench., R. *mìnus* Mx. Fl. Bor. Amer., R. *punctàtum var. mìnus* Wats. Dend. Brit.
2 màjus *Ker* - 588

9. ferrugíneum *L.* - 588
2 álbum *Lodd. Cat.* 588

10. (? f.) hirsùtum *L.* 588
2 variegàtum - 589

11. setòsum *D. Don* 589
*Other Species.*— *R.* macrophýllum *D. Don* - - 589

§ ii. Boòram.

12. campanulàtum 589
*Other Species.*—*R.* arbòreum *Smith*, *R.* a. venústum *D. Don* - - - - 590

§ iii. *Pogonánthum.*

13. anthopògon *Don* 590
R. *aromàticum* Wall. Cat.

§ iv. *Lepipherum* D. Don.

14. lappónicum *Wahl.* 590
*Azàlea lappónica* Lin. Fl. Suec., *A. ferruginea* Hort.

15. dàùricum *L.* - 591
2 atrovìrens *Ker* - 591
R. *lepidòtum* Wall.

§ v. *Chamæcístus* D. Don.

16. camtscháticum *P.* 591
17. Chamæcístus *L.* 592

§ vi. *Pentanthèra* D. Don.
*Azàlea* L.

18. flàvum G. *Don* 592
*Azàlea póntica* Lin. Sp., *Azàlea arbòrea* Lin. Sp.
*Varieties and Hybrids* - 592

19. nudiflòrum *Torr.* 592
*Azàlea nudiflòra* Lin. Sp., *Azàlea periclymenòides* Mx. Fl. Bor. Amer.: *the American Honeysuckle, May Flowers,* and *wild,* or *upright, Honeysuckle,* Amer.
1. coccíneum *D. D.* 593
*Azàlea n. coccínea* Sims
2 rùtilans *D. Don* - 593
*A. n. rùtilans* Ait. H. K.
*A. periclymenòides rùtilans.*
3 cárneum *D. D.* - 593
*A. n. cárnea* Ait.
*A.* p. *cárnea* Pursh.
4 álbum *D. Don* - 593
*A. n. álba* Ait.
*A.* p. *álba* Pursh.
5 papilionàceum - 593
*A.* p. *papilionàcea* Pursh.
6 partìtum *D. D.* 593
*A.* p. *partìta* Pursh.
7 polyándrum *D.* - 593
*A.* p. *polyándra* Pursh.
8 Governiànum D. - 593
9 rùbrum *Lod. B. C.* 594
10 exímium *D. D.* 594
11 thyrsiflòrum *B. R.* 594
12 scintíllans *B. R.* 594
13 Seymoùri B. R. 594
*Varieties and Hybrids* assigned to A. nudiflòra in *Lodd. Cat.,* 1836 - 594

20. (n.) bícolor *D.* - 594
*Azàlea bicolor* Pursh Sept., *Azàlea nudiflòra var. bicolor* Ait. Hort. Kew.

21. (n.) calendulàceum *Torr* - - 595
*Azàlea calendulàcea* Michx. Fl. Bor. Amer., *A. nudiflòra var. coccínea* Ait. Hort. Kew.
2 Mortèrii Swt. - 595
3 fúlgidum *Hook.* - 595
*A. c. fúlgida* Hort.
4 lépidum *Bot. R.* - 595

22. canéscens *G. Don* 595
*Azàlea canéscens* Michx. Fl. Bor. Amer., Ph. Sept.

23. viscòsum *Torr.* - 595
*Azàlea viscòsa* Lin. Sp.
2 ornàtum *Swt.* - 596
*Varieties and Hybrids* of A. viscósa in *Lod C.* 1836 596

24. (v.) glaúcum *D.* 596
*Azàlea glaúca* Pursh Sept., *A. viscòsa var. floribúnda* Ait. Hort. Kew.

25. (v.) híspidum *T.* 597
*Azàlea híspida* Pursh Sept., *Azàlea viscòsa var. glaúca* Ait. Hort. Kew.

26. (v.) nítidum *T.* 597
*Azàlea nítida* Pursh Fl. Amer. Sept.

27. speciòsum *Don* 597
*Azàlea speciòsa* Willd. Enum., *A. coccínea* Lodd. Bot Cab.

28. arboréscens *T.* 598
*Azàlea arboréscens* Pursh Fl. Amer. Sept., *A. arbòrea* Bart. Cat.

§ vii. *Rhodòra* D. Don.

29. *Rhodòra* *G. Don* 598
*Rhodòra canadénsis* Lin. Sp.

XXII. Ka'lmia L. 598
*American Laurel.*

1. latifòlia *L.* - - 599
*Mountain Laurel, Calico Bush, Calico Flower,* Amer.

2. angustifòlia *L.* - 599
*Sheep Laurel,* Amer.
2 ovàta *Pursh* - 599

3. glaúca *Ait.* - - 599
*K. polifòlia* Wangh. Act. Soc. Berol.
2 rosmarinifòlia *P.* 600

4. cuneàta *Michaux* 600
5. hirsùta *Walt.* - 600
*K. ciliàta* Bartr. Itin.

XXIII. Menzie'sia 600

1. ferrugínea *Smith* 601
*M. urccolàris* Sal. Par. Lond.

2. globulàris *Salisb.* 601
*M. Smithii Mx. Fl. Bor. Amer., Azàlea piłòsa* Lam. Ill. *M. piłòsa* Pers. Ench.

XXIV. Aza'lea *D.* 601
*Azàlea procumbens* Lin. and many authors. *Loiseleùria De C., Chamælèdon* Link Enum.

1. procúmbens *L.* - 601
*Chamælèdon procúmbens* Link Enum., *Loiseleùria procúmbens* Desf.

XXV. Leiophy'llum *P.*

*Ammýrsine* Pursh Sept., *Fischera Swartz, Ledum buxifòlium* Berg. Ait.

1. thymifòlium *Pers.* 602
*Lèdum buxifòlium* Bergius, *Lèdum thymifòlium* Lam. Dict., *Lèdum serpyllifòlium* L'Hérit. Stirp., *Ammýrsine buxifòlia* Pursh Sep.: *Sand Myrtle,* New Jersey.

*Other Species of Leiophýllum.*— L. prostràtum (*Ammýrsine prostràta* Swt., Loud. Hort. Brit.; *A. Lyoni Swt. H.B.*) 602

XXVI. Le'dum *L.* 602

1. palústre *L.* - 603
L. *silesiacum* Clus. Pan., *Rosmarinum sylvéstre* Cam. Epit.
2 decúmbens *Ait.* 603

2. latifòlium *Ait.* - 603
L. *greenlándicum* Retz. Obs., L. *palústre* Mx. Fl. Bor. Amer.: *Labrador Tea,* Amer.

3. canadénse *Lodd.* 603

Sect. III. Vaccinie æ.

XXVII. Vacci'nium *L.*
The Whortleberry. — *Vitis idæa* Tourn. Inst.: *Airelle,* Fr., *Heidelbeere,* Ger.

A. *Leaves deciduous.*

a. *Pedicels* 1-*flowered, usually solitary, rarely twin, or fasciculate.*

1. *M*yrtíllus *L.* - 604
*The common Bilberry,* or *Bleaberry.*
2 báccis álbis *Booth* 604

2. uliginòsum *L.* - 605
*Myrtillus grándis* Bauh. Hist.: *the great Bilberry.*

3. angustifòlium *Ait.* 605
V. *myrtillòides* Mx. Fl. Bor. Amer.

4. cæspitòsum *Mx.* 605

b. *Flowers in sessile Tufts.*

5. *galèzans* Michx. 606
V. *galiformis* Sm. *in* Rees's Cycl.

6. tenéllum *Ait.* - 606
V. *pennsylvánicum* Lam. Dict.
*Variety* - - 606

7. *l*igústrinum *Michx.* 606

c. *Flowers disposed in Racemes.*

8. pállidum *Ait.* - 606
9. arbòreum *Marsh* 607
V. *diffúsum* Ait. Hort. Kew.

10. stamíneum - 607
V. *álbum* Pursh Sept., V. *elevàtum* Banks Herb.: *Deer Berry,* Amer.
2 álbum *H. B. et K.* 607

11. dumòsum *Ait.* - 607
V. *frondòsum* Mx. Fl. Bor. Amer., V. *hirtéllum* Ait. Hort. Kew.
2 hùmile *Wats. D. B.* 608

12. corymbòsum *L.* 608
V. *amæ'num* Ait. Hort. Kew., V. *disomórphum* Mx. Fl. Bor. Amer., V. *elevàtum* Hort., V. *álbum* Lam. Dict.
2 virgàtum *Ait. H. K.* 608
3 fuscàtum *Ait. H. K.* 608
V. *formòsum* And. Bot. R. V. *virgàtum* Wats. Dend. Brit., but not of Ait.
4 angustifòlium - 609
V. *virgàtum var. angustifòlium* Wats. Dend. Br.

13. albiflòrum *Hook.* 609
V. *álbum* Lam. ?

14. mariànum *Wats.* 609
V. *marylándicum* Lodd. Cat. ed. 1836.

15. grandiflòrum *W.* 609
16. (g.) elongàtum *W.* 609
17. (g.) minutiflòrum 610
18. glàbrum *Wats.* - 610
19. frondòsum *L.* - 610
V. *glaúcum* Mx. Fl. Bor. Amer.: *Blue Tangles*, Amer.
2 venústum *Ait.* 611
V. *frondòsum var. β lanceolàtum* Pursh Fl. Am.

20. resinòsum *Ait.* - 611
*Andrómeda baccàta* Wangh. Amer.
2 rubéscens *Pursh* 611
3 lutéscens *Pursh* 611
V. *parviflòrum* And. B. R.

21. *A*rctostáphylos *L.* 611
22. (? *A.*) *p*adifòlium 611
V. *Arctostaphylos* Andr. Bot. Rep., V. *maderénse* Lk. Enum., V. *caucásicum* Hort., V. *padifòlium caucásicum* Hort. Soc. Cat. of Fruit, ed. 1826.

B. *Leaves evergreen.*

a. *Flowers racemose.*

23. caracasànum - 612
24. *V*itis idæ'a *L.* - 612
V*itis idæ'a rùbra* Cam. Epit.: *the Red Whortleberry*, or *Cowberry*.

25. (*V.*) *b*uxifòlium 613
V. *brachýcerum* Mx. Fl. Bor.

26. (? *V.*) *m*yrtifòlium 613
27. nítidum *Andr.* - 614
28. crassifòlium *An.* 614
29. ovàtum *Pursh* - 614
30. canadénse *Rich.* 614

b. *Flowers disposed in scaly Tufts, nearly sessile.*

31. *M*yrsinìtes *Mx.* 615
2 lanceolàtus *Pursh* 615
3 obtùsus *Pursh* 615
32. humifùsum *Grah.* 615

XXVIII. Oxyco'ccus
The Cranberry. — *Vaccinium sp.* of Lin. and others.

1. palústris *Pers.* - 616
*O. vulgàris* Pursh Sept., *O. europæ'us* Nutt. Gen. Amer., *Vaccinium Oxycóccus* Lin. Sp, *Vaccinium Oxycóccus var. α ovalifòlius* Mx. Fl. Bor. Amer., *Vaccinia palústris* Ger. Emac.; *Oxycóccum* Cord. Hist.: *Mossberries*, *Moorberries*, *Fenberries*, *Marshworts* or *Whortleberries*, *Cornberries*: *Airelle canneberge*, Fr.; *gemeine Moosebeere*, Ger.

2. macrocárpus *Pur.* 616
*Vaccinium macrocárpum* Ait. Hort. Kew., *Vaccinium hispidum* Wangh. Amer., *Vaccinium Oxycóccus β oblongifòlius* Mx. Fl. Bor. Amer.
2 fòliis variegàtis 617
*Vaccinium macrocárpum fol. var.* Lodd. Cat.
3 eréctus *Pursh* - 617
*Vaccinium erythrocárpum* Mx. Fl. Bor. Am.

## *Styràceæ.*

I. *S*ty'rax *L.* - - 618
The Storax.—*Alibocifier*, Fr.; *Storax*, Ger.

1. officinàle *L.* - 618
*Lagomélia*, Modern Greek; *Sturax kalamitēs*, Ancient Greek.

2. (o.) grandifòlium 618
S. *officinàle* Walt. Fl. Carol., S. *grandiflòrum* Michx. Fl. Bor. Amer.

3. (o.) lævigàtum *A.* 619
S. *octándrum* L'Hérit. Stirp. Nov., S. *glàbrum* Cav. Diss., S. *læ've* Walt. Fl. Carol., S. *americànum* Lam. Dict.

4. (o.) pulveruléntum 619
S. *lævigàtum* Bot. Mag.

## *Hales*iàceæ.

I. Hale'*SIA* Ellis 620
The Snowdrop Tree. — *Halésie*, Fr. and Ger

1. tetráptera *L.* - 620
The Snowdrop Tree.—*Silver Bell Tree*, Amer.

2. (t.) parviflòra *M.* 621
3. díptera *L.* - - 621

## Sapotàceæ.

I. *Arga'nia* Rœm. 622
*Sideróxylon spinòsum* L.; *l'Argan*, Fr.; *Eisenholz*, Ger.

1. Sideróxylon *Rœm.* 622
*Sideróxylon spinòsum* Lin. Sp., *Elæodéndron* A'rgan *Retz. Obs.*, *Rhámnus pentaphýllus* Jacq. et Boccone, *Rhámnus siculus* Lin. Syst.

II. *B*ume'lia *Swart.* 623
A'*chras sp.* Lin., Poir.; *Sideróxylon sp.* Lam. and others; *Chrysophýllum sp.* Aubl. and others: *Hochstamm*, Ger.

1. *l*ycioìdes *Gærtn.* 623
*Sideróxylon lycioìdes* Du Ham. Arb., *S. læ've* Walt. Fl. Carol., *Lycioìdes sp.* Lin. Hort. Cliff.

2. reclinàta *Vent.* - 623
*Sideróxylon reclinàtum* Mich. Fl. Bor. Amer.

3. tènax *Willd.* - 624
B. *chrysophyllòides* Pursh Fl. Amer. Sept., *Sideróxylon tènax* Lin. Mant., *S. sericeum* Walt. Fl. Carol., *S. chrysophyllòides* Michx. Fl. Bor. Amer., *Chrysophýllum carolinénse* Jacq. Obs., *C. glàbrum* Juss.

4. lanuginòsa *Pursh* 624
*Sideróxylon lanuginòsum* Michx. Fl. Bor. Amer., *S. tènax* Walt. Fl. Car.

5. oblongifòlia *Nutt.* 624

## E*benàceæ.*

I. *D*iospy'ros *L.* - 625
The Date Plum.—*E'benus* Comm., Guaiacàna *Tourn.*: *Plaqueminier*, Fr.; *Dattelpflaume*, Ger.

1. *L*òtus *L.* - - 625
*Pseudolòtus* Matth., Guaiacàna *patavina* Tourn.: *Italian Lignum Vitæ*, *Wood of Life*, *Pockwood*, *Bastard Menynwood*, Gerard; *Date of Trebisonde*: *Plaqueminier*, *faux Lotier*, Fr.; *Italiánische Dattelpflaume*, Ger.

2. virginiàna *L.* - 626
The Persimon. — Guaiacàna *Catesb. Car.*

3. (v.) pubéscens *P.* 627
D. *virginiàna var.* Michx. Arb. For.

*Other Kinds of hardy Diospyros* - - - - 627

## *Oleàceæ.*

Sect. I. *Ole'inæ.*

I. *L*igu'strum *Tou.* 628
The Privet.— *Troëne*, Fr.; *Rainweide*, Ger.

1. vulgàre *Trag.* - 628
L. *germánicum* Bauh. Hist.; *Prim*, or *Prim-print*: *Troëne*, *Puine blanc*, Fr.; *gemeine Rainweide*, Ger.; *Ligustro Olivella*, Ital.
2 leucocárpum - 629
3 xanthocárpum - 629
4 chlorocárpum - 629

5 sempervìrens - 629
L. *itálicum* Mill.
*Italian, or evergreen, Privet.*
6 variegàtum - 629
7 angustifòlium - 629

2. spicàtum *Hamilt.* 630
L. *nepalénse* Wall. in Roxb. Fl. Ind., L. *lanceolàtum* Herb. Lamb.
2 lùbrum *Hook.* 630

3. lùcidum *Ait.* - 630
*The Wax Tree.*
2 floribúndum *Donald's Cat.* - - 630

*Other Species of* Ligústrum.—*L.* salicifòlium, *L.* japónicum *Thunb.* (L. *latifolium* Vitm.), *L.* nepalénse - - - 631

II. PHILLY'REA *T.* 631
*Filaria*, Fr.; *Steinlinde*, Ger.

1. mèdia *L.* - - 632
P. *latifòlia var.* ε *mèdia* Lapeyr. Fl. Pyr., P. *ligustrifòlia* Mill. Dict., P. *læ'vis* Tenore Syll.; P. *latifòlia var.* A *ligustrifòlia* Poll. Pl. Ver.
2 virgàta *Ait. H. K.* 632
3 buxifòlia *A. H. K.* 632

2. (m.) angustifòlia *L.* 632
P. *obliqua* Ten. Syll., P. *mèdia* Tenore Fl. Neap.
2 lanceolàta *A. H. K.* 632
3 rosmarinifòlia *Ait.* 632
4 brachiàta *Ait. H. K.* 632

3. (m.) ligustrifòlia *A.* 632
P. *virgàta* Willd. Enum., P. *mèdia var.* A Willd. Sp., *Phillýrea* iii. Clus. Hist.

4. (m.) péndula *Ait.* 632
P. *mèdia* γ Willd. Sp.

5. (m.) oleæfòlia *Ait.* 633
P. *mèdia* δ Ait. Hort. Kew., P. *racemòsa* Link Jahrb.

6. (m.) latifòlia *L.* - 633
P. *latifòlia* β *serràta* Poll. Fl. Ver., P. *latifòlia* β Ten. Fl. Neap., P. *spinòsa* Ten. Syll., P. *latifòlia* β *spinòsa* Seg. Ver.

7. (m.) læ'vis *Ait.* - 633
P. *latifolia var.* A Willd. Sp., P. *latifòlia* Mill. Dict.

8. (m.) oblìqua *Ait.* 633
P. *latifòlia* γ Willd. Sp., P. *foliàcea* Link Jahrb., *Phillýrea* ii. Clus. Hist.

9. (m.) spinòsa *Mill.* 633
P. *ilicifòlia* Willd. Enum., P. *latifòlia* β *spinòsa* Willd. Sp., P. *latifòlia longifòlia* Link Jahrb., *Phillýrea* i. Clus. Hist.

III. CHIONA'NTHUS 634
The Snow-Flower, *or the Fringe Tree.*—*Chionanthe*, Fr.; *Schneeblume*, Ger.

1. virgínica *L.* - 634
*Snowdrop Tree*, Amer.; *Arbre de Neige*, Fr.; *Schneeblume*, Ger.
2 latifòlia *Cat. Car.* 634
*C. v. montàna* Pursh Sept.
3 angustifòlia *Ait.* 634
*C. trifida* Mœnch.
4 marítima *Pursh* - 634
*C. marítima* Lodd. C. 1836.

O'LEA americàna *L.* 635
*The Devil-wood*, Amer.

Sect. II. *SYRI'NGEÆ.*

IV. *SYRI'NGA* L. - 635
The Lilac. — *Lilac*, Tourn. Inst.: *Lilas*, Fr.; *Flieder*, Ger.; *Lilaco*, Ital.

1. vulgàris *L.* - - 636
Lilac *vulgàris* Gært.: *Pipe Privet*, or *Pipe Tree*: *Lilas commun*, Fr.; *gemeiner Flieder*, Ger.; *Lilla*, or *Lilac turco*, Ital.
1 cærùlea *Clus. Hist.* 636
2 violàcea *Curt. B. M.* 636
*The Scotch Lilac.*
3 álba - - - 636
4 álba màjor *Lod. C.* 636
5 álba plèna - - 636
S. *plèna* Lodd. Cat.
6 rùbra *Lodd. Cat.* 636
7 rùbra màjor *L. C.* 636
*Lilas de Marly* of the French gardeners.

*Other Varieties* - - 636

2. Josikæ'a Jacq. - 637

3. pérsica *L.* - - 637
Lilac *mìnor* Mœnch, Lilac *pérsica* Lam.: *Lilas de Perse*, Fr.; *Lilac di Persia*, Ital.
2 álba *Lodd. Cat.* - 637
3 laciniàta *Lodd. C.* 637
*S. capitàta* Gmel. Itin.
*Lilas à Feuilles de Persil*, Fr.
4 salvifòlia *Lodd. C.* 637

4. rothomagénsis - 637
S. *dùbia* Pers. Ench.; Lilàceum *rothomagénse* Renault Fl. de l'Orne, S. *mèdia* Dum. Cours., *Lilas Varìn* N. Du Ham., S. *chinénsis* Willd. Sp., S. *sibirica* Hort.: *the Siberian Lilac*, Hort.
2 Lilas Royal *Bon J.* 638
3 sanguínea *Hort.* 638
*Lilas saugé*, Fr.

*Other Species of* Syrínga. — *S. Emòdi* Wall. Cat., Don's Mill., Royle Illust. - - - 638

V. FONTANE'SIA Lab. 638

1. phillyreoìdes *Lab.* 639

Sect. III. FRAXINIE'Æ.

VI. *FRA'XINUS Tou.* 639
The Ash.—*Frêne*, Fr.; *Esche*, Ger.; *Frassino*, Ital.

A. *Leaflets broad, smooth, or shining on the upper surface. Natives of Europe.*

1. excélsior *L.* - 639
F. *apétala* Lam. Ill., F. *rostràta* Guss. Fl. Rar., F. *O'rnus* Scop. Carn., F. *eròsa* Pers., F. *crispa* Bosc: *le Frêne*, Fr.; *Aesche*, or *Esche*, Ger. and Dutch; *Ask*, Dan. and Swed.; *Frassino*, Ital.; *Fresno*, Span.; *Freixo*, Port.; *Jas*, *Jasen*, or *Jassen*, Russ.; *Æse*, Sax.
2 péndula *Ait. H. K.* 640
*Frêne Parasol*, Fr.
3 aúrea *Willd. En.* 640
F. *aúrea* Pers. Ench., Lodd. Cat. 1836.
4 aúrea péndula - 641
5 críspa - - 641
F. *crispa* Bosc.
F. *atrovìrens* Desf. Arb.
6 jaspídea *Willd.* 641
7 purpuráscens *D.* 641
F. *purpùrea* Hort.
8 argéntea *Desf.* 641
9 lùtea - - 641
10 eròsa *Pers. Ench.* 641
11 horizontàlis *Desf.* 641
12 verrucòsa *Desf.* 641
13 verruc. péndula 641
14 nàna - - 641
15 fungòsa *Lodd. C.* 641
16 verticillàta *L. C.* 641
17 villòsa nòva *Des.* 641
*Other Varieties* - - 641

2. (e.) heterophýlla 642
F. *simplicifòlia* Willd. Sp., F. *monophýlla* Desf. Arb., F. *simplicifòlia* Hort., F. *excélsior var.* ε Lam. Dict., F. *excélsior* β *heterophýlla* Dec., F. *integrifòlia* and *diversifòlia* Hort.
2 variegàta - - 643

3. (e.) angustifòlia *B.* 643
F. *salicifòlia* Hort.

B. *Leaflets small, smooth, or shining above. Natives of the South of Europe, the North of Africa, or the West of Asia.*

4. parvifòlia *Willd.* - 643
5. (p.) argéntea *Lois.* 643
6. (p.) oxycárpa *W.* 644
F. *oxyphýlla* Bieb. Fl. Taur., F. *O'rnus* Pall. Itin. Taur.
7. pállida *Bosc* - 645
8. lentiscifòlia *Desf.* 645
F. *tamariscifòlia* Vahl Enum., Don's Mill.; F. *parvifòlia* Lam. Dict., F. *aleppénsis* Pluk. Phys.
2 péndula - - 645

C. *Leaves and Leaflets large, glaucous, and downy beneath. Natives exclusively of North America; and in Britain chiefly to be considered as ornamental Trees.*

9. americàna *Willd.* 646
F. *acuminàta* Lam., Don' Mill., Pursh Sept.; F. *discolor*

Muhl.: *White Ash, Green Ash,* Amer.
2 latifòlia - - 646

10. (a.) pubéscens *W.* 646
F. *nìgra* Du Roi Harbk., F. *tomentòsa* Michx. N. Am. Syl.: *Red Ash, Black Ash,* Amer.
2 longifòlia *Willd.* 647
F. *pennsylvánica* Marsh.
3 latifòlia *Willd.* - 647
4 subpubéscens *Pers.* 647
? F. *subvillòsa* Bosc.

11. (a.) sambucifòlia 647
F. *nìgra* Mœnch, F. *crispa* Hort.: *the Black Ash: Water Ash,* Amer.
2 críspa *Lodd. Cat.* 647

12. (a.) quadrangulàta *Mx.* - - - 648
F. *tetragòna* Cels ex Dum. de Cours., F. *quadrangulàris* Lodd. Cat.: *Blue Ash,* Amer.
2 nervòsa *Lodd. Cat.* 648

13. (a.) juglandifòlia 648
F. *viridis* Mx. N. Amer. Syl., F. *cóncolor* Muhl.: *the Green Ash,* Michx.; *Western Black Ash,* Pursh.
2 subintegérrima 649
F. *juglandifòlia β subserràta* Willd.
F. *carolinièna* Wang. Am.
F. *Nòvæ-A'ngliæ* and F. *carolinièna* Mill. Dict.

14. (a.) caroliniàna 649
F. *excélsior* Walt. Fl. Car., F. *serratifòlia* Michx. fil. Arb., F. *lanceolàta* Borkh.: *Shining Ash,* Amer.

15. (a.) epíptera *Vahl* 650
F. *canadénsis* Gærtn. Fruct., F. *láncea* Bosc.

16. (a.) platycárpa *V.* 650
F. *carolinièna* Catesb. Car.: *the Carolina Ash,* Amer.

*Other alleged American Species.* —*F.* (a.) expánsa *Willd.*, *F.* (a.) míxta *Bosc*, *F.* (a.) pulverulénta *Bosc*, *F.* (a.) rubicúnda *Bosc*, *F.* (a.) longifòlia *Bosc*, *F.* (a.) víridis *Bosc*, *F.* (a.) cinèrea *Bosc*, *F.* (a.) álba *Bosc*, *F.* (a.) Richárdi Bosc, *F.* (a.) ovàta *Bosc*, *F.* (a.) nìgra *Bosc*, *F.* (a.) elliptica *Bosc*, *F.* (a.) fúsca *Bosc*, *F.* (a.) rùfa *Bosc*, *F.* (a.) pannòsa *Vent. et Bosc*, *F.* Bóscii G. Don, *F.* (a.) polemoniifòlia *Poir.*, *F.* (a.) tríptera *Nutt.*, *F.* chinénsis *Rox.*, *F.* Schiedeàna Sch. 651

VII. *O'rnus Pers.* 651
The Flowering Ash.—*Fráxinus sp.* of the old authors: *le Frêne à Fleurs,* Fr.; *die blühende Esche,* Ger.; *Orno,* Ital.: *Oren,* Hebrew; *Oreinē mēlia,* Greek.

1. europæ'a *Pers.* 651
The Manna Ash.—*Fráxinus O'rnus* Lin. Sp., F. *O'rnus* and F. *paniculàta* Mill. Dict., F. *florifera* Scop. Carn., F. *botryòides* Mor. Prælud., F. *vulgàtior* Segn. Ver.

2. (e.) rotundifòlia 652
F*ráxinus rotundifòlia* Ait. Hort. Kew., F. *mannifera* Hort. Pluk. Alm.

3. (e.) americàna *P.* 653
F. *americàna* Linn. Sp., F. *O'rnus americàna* Lodd. Cat. 1836.

4. floribúnda *G. D.* 653
F*ráxinus floribúnda* D. Don Prod. Fl. Nep.

*Other Species of O'rnus.* — *O.* striàta (F*ráxinus striàta* Bosc, Don's Mill.) - 653

## *Jasminàceæ.*

I. JASMI'NUM *Forsk.* 654
The Jasmine.—Mongòrium *Lam.*: *Jessamine*: *Jasmin,* Fr. and Ger.; *Schasmin,* Ger.; *Gelsomine,* Ital.; *Jazmin,* Span.

1. frùticans *L.* - 654
*Jas. heterophýllum* Mœnch, Lob. Adv.

2. hùmile *L.* - 655
*Italian yellow Jasmine.*

3. heterophýllum *R.* 655
J. *arbòreum* Hamilt. MSS.: *Goojee* and *Javana* in Nepal.

4. revolùtum *Ker* - 655
J. *chrysánthemum* Roxb. Fl. Ind.; *the Nepal yellow Jasmine.*

5. (r.) pubígerum *D.* 656
J. *Wallichiànum Lindl. Bot. Reg.*: *Climali-swa,* Nepalese.

6. officinàle *L.* - 656
2 fòliis argénteis *L* 656
3 fòliis aúreis *L. C.* 656
4 flóribus plènis *H.* 656

## *Apocynàceæ.*

I. *Vi'nca L.* - 657
The Periwinkle.—*Pervínca* Tourn.: *la Pervenche,* Fr.; *Sunngrün,* Ger.; *Vinca, or Fior da Morto,* Ital.

1. màjor *L.* - 657
*Vínca mèdia* Delile, *Pervínca màjor* Scop. Carn.
2 variegàta *Hort.* - 657

2. mìnor *L.* - 657
*Pervínca mìnor* Scop. Carn., *Pervinca vulgàris* Park. Thea., *Clématis daphnòides* Dodon. Pempt.
2 fòliis argénteis *L.* 658
3 fòliis aúreis *Lod.* 658
4 flòre álbo *Lod. C.* 658
5 flòre plèno *Lod.* 658
6 flòre puníceo *L.* 658
7 acutifloòra *Bert.* 658



## *Asclepiadàceæ.*

I. PERI'PLOCA *L.* - 658
*Periploca,* Fr.; *Schlinge,* Ger.; *Periploca,* Ital.

1. græ'ca *L.* - - 659
*P. maculàta* Mœnch, Schmidt Baum.: *Silk Tree*: *Apocino serpeggiante,* Ital.

2. angustifòlia *Lab.* 659
*P. rigida* Viv., *P. lævigàta* Vahl.

PHYSIA'NTHUS álbens *Mart.* - - - 659

## *Bignoniàceæ.*

I. BIGNO'NIA Tou. - 660
The Trumpet Flower.—*Bignone,* Fr.; *Trompetenblume,* Ger.; *Bignonia,* Ital.

1. capreolàta *L.* - 660

II. *TE'COMA* Juss. 661
*Bignònia sp.* Lin. and others.

1. radìcans *Juss.* - 661
*Bignònia radìcans* Lin. Sp., *Bignònia radìcans màjor* Hort., Gelsèmium *Clématis* Barrel. Icon., *Bignònia fraxinifòlia* Catesb. Car.: *Jasmin de Virginie,* Fr.; *Wurzeln Bignonia,* Ger.; *Esschenblädige Bignonia,* Dutch; *Gelsomino americano,* Ital.
2 màjor *Hort.* - 661

2. grandifloòra *Swt.* - 661
*Bignònia grandifloòra* Thunb. Fl. Jap., *B. chinénsis* Lam. Dict., *Rjotsjo* Kæmpf. Amœn., *Incarvillea grandifloòra* Spreng. Syst.: *Tung-von-fa,* Chinese.

III. *CATA'LPA* Juss. 662
*Bignònia sp.* of Lin. and others: *Bignone Catalpa,* Fr.; *gemeine Trompetenblume,* Ger.

1. *syringæfòlia Sims* 662
*Bignònia* Catálpa *Lin. Sp.*, Catálpa *bignonioìdes Walt. Fl. Car.*, C. *cordifòlia* Nutt. Gen. Amer.: *Bois Shevanon, Catalpa de l'Amérique,* Fr.; *Trompetenbaum,* Ger.; *Catalpa-boom,* Dutch.

## *Solanàceæ.*

I. SOLA'NUM *Tourn.* 663
The Nightshade.—*Melongèna* Tourn. Inst., *Pseùdo-Cápsicum* Mœnch Meth., *Nyctérium* Vent. Jard. Malm., *Aquártia Jacq. Amer.*: *Morelle,* Fr.; *Nachtschatten,* Ger.; *Solano,* Ital.

1. Dulcamàra *L.* - 664
S. *scándens* Neck. Gall. Bel., *Dulcamàra flexuòsa* Mœnch Meth., S. *scándens seu Dulcamàra* Tourn. Inst., *Amàra dúlcis* Gerard Emac., *Dúlcis amàra* Trag., *Glycýpicros seu Dulcamàra* Bauh. Hist.: *la*

*Morelle grimpante*, Regnault Bot. Icon.
1 violàcea *H. Eyst.* 664
2 àlba *Lin. Fl. Suec.* 664
3 cárnea *Cels. Ups.* 664
4 plèna *Tourn. Inst.* 664
5 variegàta *Munt.* 664
6 hirsùta *Don's Mill.* 664
S. *littoràle* Hum.
7 rupéstris *Schmidt* 664

2. críspum *R. & S.* 664

II. *Ly'cium L.* - 665
The Box Thorn.—*Jasminòides* Niss. in Act. Gall.: *Matrimony Vine*, Amer.; *Lycien*, Fr.; *Rocksdorn*, Ger.; *Licio*, Ital.

1. europæ'um *L.* - 665
L. *salicifòlium* Mill. Dict., *Jasminòides aculeàtum* Mich.: *Spino santo, Spino di Cristo*, Ital.
*Varieties.* — Fruit yellow, Fruit roundish - - 666

2. (e.) bárbarum *L.* 666
L. *halimifòlium* Mill. Dict., L. *bárbarum α vulgàre* Ait. Hort. Kew.: *the Duke of Argyll's Tea Tree.*

3. (e.) chinénse *M.* 666
L. *bárbarum β chinénse* Ait. Hort. Kew., L. *bárbarum* Lour. Coch.?, L. *ovàtum* N. Du Ham.

4. (e.) Trewiànum 667
L. *bárbarum* Lam. Dict., L. *chiaénse* N. Du Ham.

5. (e.) ruthénicum 667
L. *tatáricum* Pall. Fl. Ross.: *Lycien de la Russie*, Fr.
2 cáspicum *Pall.* 667

6. (e.) lanceolàtum 668
L. *europæ'um β* Dec. Fl. Fr.

7. (? e.) turbinàtum 668
L. *halimifòlium* Mill. Dict.?, L. *bárbarum β* Dec. Fl. Fr.

8. àfrum *L.* - - 668
2 rígidum - - 668
L. *rígidum* Booth.
*Other Species of Lýcium.* — *L.* ovàtum, *L.* spatulàtum, and *L.* obovàtum - - 669

III. Crabo'wski*a* Schl.
*Lýcium sp.* Lin., *Ehrètia sp.* L'Hérit.

1. boerhaavi*æfòlia* S. 669
*Lýcium boerhaavi*æfòlium *Lin. Suppl.*, *Ehrètia halimifòlia* L'Hérit. Stirp., *Lýcium heterophýllum* Murr. Comm. Gött., *Jasminòides spinòsum* Du Ham. Arb.: *Lycium paniculé*, Fr.

## *Scrophulariàceæ.*

I. Bu'ddle*a* L. - 670

1. globòsa *L.* - - 670
*Buddlea globifòra* N. Du Ham.; *B. capitàta* Jacq. Col., Icon. Rar.; *Pálquin*, Feuillée It.: *Buddleia globuleux*, Fr.; *Kopftragende Budleje*, Ger.

II. Paulo'wni*a* Sieb.
*Bignònia Thunb. Fl. Jap.*, *Willd. Sp. Pl.*, *Pers. Syn.*; *Incarvillea Spreng. Syst.*: *Kirri*, Japanese; *Too, Hak-too*, Chin.

1. imperiàlis *Sieb.* - 671
*Bignònia tomentòsa* Thunb. Fl. Jap., Willd. Sp. Pl., Pers. Syn.; *Incarvillea tomentòsa* Spreng. Syst. Veg.: *Kirri*, Japanese, Kæmpf. Amœn.

## *Labiàceæ.*

Philo'mis fruticòsa 672
Jerusalem Sage.

Rosmari'nus officinàlis *L.* - - - 672

Lava'ndula Spìca 672
The common Lavender.

Sa'lvia officinàlis *L.* 673

## *Verbenàceæ.*

I. *Vi*'tex *L.* - - 673
The Chaste Tree.—*Gatilier*, Fr.; *Kenschbaum*, Ger.; *Vitice*, Ital.

1. *A'*gnus cástus *L.* 673
*Elæágnum Theophrásti Lob. Icon.*, *A'gnus cástus* Blackw., *Piper agréstis* Gerard: *Acbre au Poivre sauvage*, Fr.; *Pepe di Monaci*, Ital.
2 latifòlia *Mill.* - 674

2. (*A.*) incìsa *Lam.* 674
V. Negúndo *Bot. Mag.*

3. arbòrea *Rox.* - 674

# Subdiv. II. MONOCHLAMY'DEÆ.

## *Chenopodiàceæ.*

I. Chenopo'dium *L.* 675
The Goosefoot.—*Salsòla sp.* Lin.: *Anscrine*, Fr.; *Gause Fuss*, Ger.; *Chenopodio*, Ital.

1. fruticòsum *Schrad.* 675
Stonecrop Tree. — *Satsòla fruticòsa* Lin. Sp. Pl.: *The shrubby Glasswort*: *Soude en Arbre*, Fr.; *strauchartiges Salzkraut*, Ger.; *Sopravvivolo legnoso*, Ital.

2. parvifòlium *R. & S.* 675
*C. fruticòsum* Bieb. in Fl. Taur.-Cauc., *C. microphýllum* Bieb in Suppl. to Fl. Taur.-Cauc., *Salsòla fruticòsa* Bieb. Casp., *Suaèda microphýlla* Pall. Illust.

II. *A'*triplex *L.* - 676
The Orache.—*Arroche*, Fr.; *Melde*, Ger.; *Atriplice*, Ital.

1. *H*álimus *L.* - 676
The Tree Purslane.—*Hálimus latifòlius sive fruticòsus* Bauh. Pin.; *Hálimus* i. Clus. Hist.: *the broad-leaved Sea Purslane Tree*: *Arroche*, Fr.; *strauchartige Melde*, Ger.

2. portulacoïdes *L.* 676
The Sea Purslane.—*Hálimus secúndus* Clus. Hist., *H. vulgáris* Ger. Emac., *Hálimus seu Portulàca marìna* Bauh. Pin. *A'triplex marítima*, *Hálimus et Portulàco marìna dicta angustifòlia* Raii Syn.: *the narrow-leaved Sea Purslane Tree.*

III. Dio'tis *Schreb.* 677
*Ceratòides* Tourn., *A'xyris* Lin., *Ceratospérmum* Pers.

1. Ceratòides *W.* - 677
*A'xyris Ceratòides* Lin. Sp. Pl., *Ceratospérmum pappòsum* Pers., *A'xyris fruticòsa flóribus fœmineis lanàtis* Gmel. Sib., *Achyránthes pappòsa* Forsk. Descr., *Krascheninnikòvia* Guldenst. in Act. Petrop., *Urtica fòliis lanceolàtis fœminìnis hirsùtis* Roy. Lugdb.; *Ceratòides orientàlis fruticosa Elæágni fòlio* Tourn. Cor.: *Orientalisches Doppelohr*, Ger.

## *Polygonàceæ.*

I. Tragopy'rum *Bieb.*
The Goat-Wheat.—*Polýgonum* Lin. Hort. Ups.

1. lanceolàtum *Bieb.* 678
*Polýgonum frutéscens* Willd. Sp. Pl., *strauchartiger Knötterig*, Ger.

2. buxifòlium *Bieb.* 678
*Polýgonum crispulum var. α* Sims Bot. Mag.; *P. caucásicum* Hoffm.

3. polýgamum *Spr.* 679
*Polýgonum polýgamum* Vent. Cels., *P. parvifòlium* Nutt. Gen.

*Other Species of Tragopýrum* — T. maritima - - 679

II. *A*TRAPHA'XIS *L.* 679
A'*triplex* Tourn.: *Strauchmelde*, Ger.

1. spinòsa *L.* - 680
A'*triplex orientàlis, frùtex aculeàtus, flore púlchro*, Tourn. Cor.

2. undulàta *L.* - 680

III. CALLI'GONUM *L.* 680
*Pallàsia L., Pterocóccus* Pall.

1. Pallàs*ii* L'Hérit. 680
*Pterocóccus aphýllus* Pall. Voy., *Callígonum polygonòides* Pall. Itin., *Pallàsia cáspica* Lin. fil. Suppl., *Pallàsia Pterocóccus* Pall. fil. Ross.: *Caspischer Hackenknopf*, Ger.

## *Lauràceæ.*

I. *LAU'RUS L.* - 681
The Laurel, *or Bay Tree.* — Sássafras *and* Benzòin *C. G. Von Esenbeck*: *Daphné*, Greek; *Laurier*, Fr.; *Lorbeer*, Ger.

A. *Leaves evergreen.*

1. nóbilis *L.* - - 681
The Sweet Bay. — *Laúrus* Camer., Tour., Dodon., Ray; L. *vulgàris* Bauh. Pin.: *Laurier commun, Laurier franc, Laurier d'Apollon, Laurier à Sauce*, Fr.; *gemeine Lorbeer*, Ger.; *Alloro*, Ital.
2 undulàta *Mill.* - 682
3 salicifòlia *Swt.* - 682
L. *n. angustifòlia* Lod.
4 variegàta *Swt.* - 682
L. *n. fol. var.* Lodd. Cat.
5 latifòlia *Mill.* - 682
6 críspa *Lodd. Cat.* 682
7 flòre plèno - 682

2. carolinénsis *Cates.* 683
The Red Bay. — L. *Borbònia Lin. Sp.*, L. *axillàris* Lam., *Borbònia sp.* Plum. Gen., *Pérsea Borbònia* Spreng.: *the broad-leaved Carolina Bay*: *Laurier rouge, Laurier Bourbon, Laurier de Caroline*, Fr.; *Carolinischer Lorbeer, rother Lorbeer*, Ger.
2 glàbra *Pursh* - 683
3 pubéscens *Pursh* 683
4 obtùsa *Pursh* - 683

3. Catesbi*àna* Mx. 683
L. *æstivàlis* Lin. Spec., L. *enérvis* Mill. Dict., L. *Euósmus æstivàlis* Nutt. Gen.: *Pond Bush*, Amer.; *Sommer Lorbeer*, Ger.

B. *Leaves deciduous.*

4. *Sássafras* L. - 683
*Córnus más odoràta, folio trifido, margine pleno, Sassafras dicta*, Pluk. Alm.; *Sássafras árbor, ex Florida, ficulneo folio*, Bauh. Pin.: Sássafras *sp.* C. G. Nees Von Esenbeck, *Pérsea* Sássafras *Spreng.*: *Laurier Sassafras*, Fr.; *Sassafras Lorbeer*, Ger.; *Sassofrasso*, Ital.

5. *Benzòin* L. - - 685
The Benjamin Tree. — *A'rbor virginiàna citreæ vel limonii folio, benzoinum fundens*, Comm. Hort.; *Laúrus æstivàlis* Wangh. Amer., *Laúrus Pseùdo*-Benzòin *Michaux Fl. Bor. Amer.*, *Euósmus* Benzòin *Nutt. Gen.*, Benzòin *sp.* C. G. Nees Von Esenbeck: *Spice Bush, Spice Wood, or wild Allspice*, Amer.; *Laurier faux Benzoin*, Fr.; *Benzoin Lorbeer*, Ger.

6. (*B.*) Diospyrus *P.* 685
L. *Euósmus Diospýrus* Nutt. Gen., L. *diospyróides* Mx. Fl. Bor. Amer., ? L. *melissæfòlia* Walt. Car.

7. geniculàta *Mx.* 685
L. *Euósmus geniculàta* Nutt. Gen., L. *æstivàlis* Willd. Sp. Pl.

## *Thymelàceæ.*

I. *DA'PHNE L.* - 686
*Thymelæ'a* Tourn. Inst., Gærtn.: *Daphne*, Fr.; *Seidelbast*, Ger.; *Dafne*, Ital.

A. *Leaves deciduous.*

1. *Mezèreum* L. - 687
The common Mezereon. — *Spurge Olive, Spurge Flax, Flowering Spurge*, Parkinson; *Dwarf Bay*, Gerard: *Lauréole femelle, Bois gentil, Mezéreon, Bois joli*, Fr.; *gemeiner Seidelbast*, or *Kellerbalz*, Ger.; *Peperachtige Daphne*, Dutch; *Laureola femina, Biondella, Camelia*, Ital.; *Laureola hembra*, Span.
2 flòre álbo - - 687
3 autumnàle - 687

2. altàica *Pall.* - 687
*Daphne altaique, Lauréole de Tartarie*, Fr.; *Sibirischer Seidelbast*, Ger.

3. alpìna *L.* - - 688
*The Alpine Chamelea* Marsh. Plant.: *Daphné des Alpes*, Fr.; *Alpen Seidelbast*, Ger.; *Olivella*, Ital.

B. *Erect. Leaves persistent. Flowers lateral.*

4. Laurèola *L.* - 688
The Spurge Laurel. — *Daphnòides vèrum vel Laurèola* Gesn.; *Laurèola* Raii Syn., Ger. Em.; *Thymelæ'a Laurèola* Scop. Carn.: *the evergreen Daphne*: *Lauréole male, Lauréole des Anglais*, Fr.; *immergrüner Seidelbast*, Ger.; *Cavolo di Lupo*, Ital.

5. póntica *L.* - 688
*Thymelæ'a póntica, citrei foliis*, Tourn. Itin.: *Lauréole du Levant*, Fr.; *Pontischer Seidelbast*, Ger.
2 rùbra *Hort.* - 689
3 fòlii variegàtis *L.* 689

6. *Thymelæ'a Vahl.* 689
*Thymelæ'a foliis polygalæ glabris* Bauh. Pin.; T. *alpina glàbra, flosculis subluteis ad foliorum ortum sessilibus*. Pluk. Alm.; *Sanamúnda viridis vel glàbra* Bauh. Prod.; *Sanamúnda glàbra* Bauh. Hist.; *Passerìna Thymelæ'a* Dec.: *the Wild Olive*: *la Thymelie*, Fr.; *astloser Seidelbast*, Ger.

7. *Tárton-raíra* L - 689
*Thymelæ'a foliis candicantibus et sericì iustar mollibus* Bauh. Pin.; *Tarton-Raire Gallo-provinciæ Monspeliensium* Lob. Ic., *Sanamúnda argentàta latifòlia* Barr. Ic., *Passerìna* Tárton-raíra *Schrd.*: *the oval-leaved Daphne*: *Lauréole blanche*, Fr.; *Silberblättriger Seidelbast*, Ger.

8. (? *T.*) pubéscens 689
*Thymelæ'a itálica, Tartonraire Gallo-provinciæ similis, sed per omnia major*, Micheli: *Behaarter Seidelbast*, Ger.

9. (? *T.*) tomentòsa 690
*Passerìna villòsa* Lin.: *Lauréole cotonneuse* Lam. Encyc.

C. *Erect. Leaves persistent. Flowers terminal.*

10. collìna *Smith* 690
The Neapolitan Mezereon. — D. *collìna* α Bot. Reg.: ? D. *buxifòlia* Vahl Symb.; *Daphné des Collines, Lauréole à Feuilles de Santé*, Fr.; *Stumpfblättriger Seidelbast*, Ger.
2 neapolitàna *L.* - 690
D. *neapolitàna* Lod. Bot.

11. (c.) oleòides - 690
*Chamædaphnòides crética* Alpin. Exot., *Thymelæ'a crética oleæ folio utrinque glabra* Tourn. Cor.; *Dáphne salicifòlia* Lam. Encycl.: *Lauréole à Feuilles d'Olivier*, Fr.; *Oelbaumblättriger Seidelbast*, Ger.

12. (c.) serícea *Vahl* 691
*Thymelæ'a crética oleæ folio subtus villosa* Tourn. Cor., *Dáphne oleæfòlia* Lam. Encyc.: *Seidenartiger Seidelbast*, Ger.

13. striàta *Trat.* - 691

D. *Erect. Leaves persistent. Flowers in Racemes.*

14. *Gnídium L.* - 691
*Thymelæ'a foliis lini* Bauh. Pin.: *Spurge Flax, Mountain Widow Wayle*: *Daphné Guidium, Lauréole à Panicule*, Fr.; *Rispenblättriger Seidelbast*, Ger.; *Camelea*, Ital.

E. *Prostrate. Leaves persistent. Flowers terminal, aggregate.*

15. Cneòrum *L.* - 691
*Cnèòrum* Matth. Hist., Clus.

Hist.: *Thymélée des Alpes*, Fr.; *Wohlriechender Seidelbast*, Ger.
2 fòliis variegàtis 692
3 flòre àlbo - 692

II. Di'rca *L.* - 692
Leather-wood. — *Thymelæ'a* Gron. Virg.

1. palústris *L.* - 692
*Moor-wood: Bois de Cuir, Bois de Plomb*, Fr.; *Sumpf Lederholz*, Ger.

## Santalàceæ.

I. Ny'ssa L. - 693
The Tupelo Tree.

1. biflòra *Michx.* - 693
*N. aquática* Lin. Sp. Pl.; *N. carolinièna* L., *N. integrifòlia* Ait. Hort. Kew., *N. pedúnculis unifloris* Gron. Virg.: *Mountain Tupelo* Mart. Mill.: *Gum Tree, Sour Gum Tree, Peperidge*, Amer.

2. (b.) villòsa *Mx.* 694
*N. sylvática* Michx. N. Amer. Syl., *N. multiflòra* Wangenh. Amer., *N. montàna* Hort., *N. pedúnculis uniflòris* Gron. Virg.: *Sour Gum Tree, Black Gum, Yellow Gum*, Amer.; *Haariger Tulpelobaum*, Ger.

3. (b.) cándicans *M.* 694
The Ogechee Lime Tree. — *N. capitàta* Walt., Ait., Michx.; *N. coccínea* Bartram: *Sour Tupelo Tree, Wild Lime: weisslicher Tulpelobaum*, Ger.

4. (b.) grandidentàta 694
The Large Tupelo Tree. — *N. tomentòsa* and *N. angulìzans* Mich. Fl. Bor. Amer., *N. denticulàta* Ait. Hort. Kew., *N. angulòsa* Poir., *N. uniflòra* Wangenh. Amer.: *Wild Olive*, Amer.; *Virginian Water Tupelo*, Mart. Mill.

II. Osy'ris *L.* - 695
The Poet's Cassia. — *Càsia* Camer., Lob., Alpin., Gesn.

1. àlba *L.* - - 695
O. *fòliis lineàribus acùtis* Lœfl. It., O. *frutéscens baccifera* Bauh. Pin., *Càsia poética Monspeliénsium* Cam. Epit., *Càsia Latinòrum* Alp. Exot., *Càsia Monspelii dicta* Gesn. Epit.: *weisse Osyris*, Ger.

## Elæagnàceæ.

I. Elæa'gnus *Tour.* 696
The Oleaster, *or Wild Olive Tree.* — *Chalef*, Fr.; *Wilde Oelbaum*, Ger.; *Eleagno*, Ital.

1. horténsis *Bieb.* - 696
E. *angustifòlia* L., Willd. Sp. Pl.; E. *songárica* Fisch., E. *inérmis* Mill. Dict., E. *argéntcus* Mœnch Meth., E *orientàlis* Delisle, ? E. *argéntea* Wats. Dend. Brit.: *Jerusalem Willow: Olivier de Bohème, Chalef à Feuilles étroites*, Fr.; *schmalblättriger Oleaster*, Ger.; *Albero di Paradiso*, Ital.
1 angustifòlia *Bieb.* 697
E. *angustifòlia* L.
2 dactylifórmis - 697
3 orientàlis - - 697
E. *orientàlis* L.
4 spinòsa - - 697
E. *spinòsa* L.

2. argéntea *Ph.* - 697
*Missouri Silver Tree*, U. S. of North America.

*Other Species of* Elæágnus. — *E.* salicifòlia ? *D. Don*, *E.* conférta *Hort.* - - 697

II. Hippo'phae *L.* 698
The Sea Buckthorn, or Sallowthorn.—*Rhamnòides* Tour.: *Argoussier*, Fr.; *Hafflorn*, or *Sanddorn*, Ger.; *Ippofae*, Ital.; *Espino amarillo*, Span.

1. Rhamnòides *L.* - 698
*Rhamnòides florifera sálicis fòlio* Tourn. Cor., *Rhamnòides fructifera* Raii Syn.: *Argoussier faux Nerprun*, Fr.; *Weidenblättriger Sanddorn*, Ger.; *Arve*, or *Saule épineux*, in the Alps of Switzerland.
2 angustifòlia *Lod.* 698
3 sibírica - - 699
H. *sibirica* Lodd. Cat.

2. salicifòlia *D. Don* 699
H. *conférta* Wall. in MSS. of the Catal. of the Linn. Soc. Indian Herb., Royle's Illust.

III. Shephe'rdia *Nutt.*
Hippóphae L.

1. argéntea *Nutt.* - 700
Hippóphae *argéntea* Pursh Sept.: *Missouri Silver Leaf*, and *Buffalo Berry Tree*, Amer.; *Rabbit Berry*, and *Beef Suet Tree*, Amer. Indians; *Graise de Buffle*, or *Buffalo Fat*, French traders.

2. canadénsis *Nutt.* 700
Hippóphae *canadénsis* Lin. Sp. Pl., Willd. Sp. Pl., Pursh Sept.

## Aristolochiàceæ.

I. Aristolo'chia *L.* 701
The Birthwort.—*Aristoloche*, Fr.; *Osterluzey*, Ger.

1. sìpho *L'Hérit.* - 701
A. *macrophýlla* Lam. Encyc.: *Aristoloche Syphon*, Fr.; *grossblättrige Osterluzey*, Ger.; *Pipe Vine*, or *Birthwort*, Amer.; *Sifo* and *Pipa*, Ital.

2 (s.) tomentòsa *S.* 702

## Euphorbiàceæ.

I. Stilli'ngia Gard. 702
1. ligústrina *Willd.* - 702

II. Bu'xus *L.* - 703
The Box Tree. — *Buis.* Fr.: *Buxbaum, Buchsbaum*, Ger.; *Bossolo*, Ital.

1. sempervìrens *L.* 703
Búxus Raii Syn.: *Buis commun, Bois béni*, Fr.; *Buchsbaum*, Ger.; *Bossolo*, Ital.
1 arboréscens *Mill.* 703
*Buis arborescent*, Fr.
*Hochstämmige Buchsbaum*, Ger.
*Subvars.*—argéntea *Hort.*, aúrea *Hort.*, marginàta *Hort.* - - - 703
2 angustifòlia *Mill.* 703
*Subvar.*—variegàta *H.* 703
3 suffruticòsa *Mill.* 704
B. *humilis* Dod. Pempt.
B. *s. nàna* N. Du Ham.
*Buis nain, Buis à Bordures, Buis d'Artois, Buis d'Hollande, petit Buis*, Fr.
*Zwerch Buchsbaum*, Ger.
4 myrtifòlia *Lam.* 704

2. baleárica *Willd.* - 704
B. *s. var. gigantèa* N. Du Ham.: *Minorca Box: Buis de Minorque, Buis de Mahon*, Fr.; *Balearischer Buchsbaum*, Ger.; *Bossolo gentile*, Ital.

## Artocárpeæ.

I. Mo'rus *Tourn.* - 705
The Mulberry Tree. — *Mûrier*, Fr.; *Maulbeere*, Ger.; *Moro*, Ital.

1. nìgra *Poir.* - - 706
The common Mulberry. — *Mòrus* Dod. Pempt., M. *fructu nigro* Bauh. Pin.
2 laciniàta *Mill. D.* 706

2. àlba *L.* - - 707
M. *cándida* Dod. Pempt., M. *fructu álbo* Bauh. Pin.; M. *álba fructu minori albo insulso* Du Ham. Arb.
2 multicaúlis *Per.* 707
M. *tatárica* Desf.
M. *bullàta* Balbis.
*Chinese Black Mulberry.*
*Perrottet Mulberry.*
*Many-stalked Mulberry.*
*Mûrier Perrottet, Mûrier à Tiges nombreuses, Mûrier des Philippines*, Fr.
*Moro delle Filippine*, Ital
3 Morettiàna Hor. 707
*Dandolo's Mulberry.*
4 macrophýlla *L.* 707
M. α *latifòlia* Hort.
M. *hispánica* Hort.
*Mûrier d'Espagne, Feuille d'Espagne*, Fr.
5 romàna *Lod. C.* 707
M. α. *ovalifòlia.*
*Mûrier romain*, Fr.
6 nervòsa *Lod. C.* 707
M. *nervòsa* Bon Jard.
M. *subálba nervòsa* Hor.
7 itálica *Hort.* - 708
M. *itálica* Lod. Cat. 1836.
8 ròsea *Hort.* - - 708
*Small white Mulberry.*
*Mûrier rose, Feuille rosa* Fr

9 columbássa *L.* - 708
*Columba*, Fr.
10 membranàcea *L.* 708
*Mûrier à Feuille de Parchemin*, Fr.
11 sinénsis *Hort.* - 708
M. *sinénsis* Hort.
M. *chinénsis* Lod. Cat.
*The Chinese Mulberry.*
13 pùmila *Nois.* ? - 708
M. *α. nàna* Hort. Brit.
*Other Varieties* - - 708

3. (a.) tatárica *Pall.* 709
4. rùbra *L.* - - 709
M. *virginica* Pluk. Alm., M. *pennsylvánica* Nois. Arb. Fruit.
2 scàbra - - 710
M. *scàbra* Willd., Nutt.
M. *canadénsis* Poir.

II. BROUSSONE'TIA Vent.
*Mòrus Sèba Kæmpf., Lin.*; *Papyrus* Encyc. Bot., Lam. Ill. Gen.

1. papyrífera *Vent.* - 710
The Paper Mulberry.—*Mòrus papyrífera* Lin. Sp. Pl.
2 cucullàta - - 710
*B. cucullàta* Bon Jard.
*B. spatulàta* Hort. Brit.
*B. naviculàris* Lodd. Cat.
3 fructu álbo - 711

III. MACLU'RA Nutt. 711
*Tóxylon* Rafinesque in 1837.

1. aurantìaca Nutt. 711
The Osage Orange. — *Bowwood, Yellow-wood*, N. Amer.

IV. FI'CUS *Tourn.* - 712
The Fig Tree.—*Figuier*, Fr.; *Feigenbaum*, Ger.; *Fico*, Ital.

1. Cárica *L.* - - 712
F. *commùnis* Bauh. Pin., F. *hùmilis* and F. *sylvéstris* Tourn. Inst.: *Figuier commun*, Fr.; *gemeine Feigenbaum*, Ger.
*Varieties* - - - - 712

V. BO'RYA W. - 713
*Adèlia* Michx. Fl. Bor. Am., *Bigelòvia Smith in Rees's Cycl. Addenda.*

1. *l*igústrina *W.* - 713
*Adèlia ligústrina* Michx. Fl. Bor. Am., *Bigelòvia ligústrina* Smith in Rees's Cyclop. Add.

2. (? *l.*) acuminàta - 714
*Adèlia acuminàta* Mx. Fl. Bor. Amer., *Bigelòvia acuminàta* Smith in Rees's Cyclop. Add.

3. (*l.*) porulòsa *W.* - 714
*Adèlia porulòsa* Mx. Fl. Bor. Amer., *Bigelòvia porulòsa* Smith in Rees's Cyclop. Add. ? *B. ovàta* Lodd. Cat. 1836.

## *Ulmàceæ*

I. *U*'LMUS *L.* - 715
The Elm.—*Orme*, Fr.; *Ulm*, or *Rüster*, Ger.; *Olmo*, Ital.

1. campéstris *L.* - 715
*Ulmus Atinia* Pliny Nat. Hist.; U. *mìnor, folio angusto scabro*, Ger. Emac.: *Olmo pyramidale*, Fr.
*Varieties.*
A. *Timber Trees.*
1 vulgàris - - 716
U. *campéstris* Hort. Dur.
2 latifòlia *Hort.* - 716
3 álba *Masters* - 716
4 acutifòlia *Masters* 716
5 stricta *Hort. Dur.* 716
*The red English Elm.*
6 vìrens *Hort. Dur.* 716
*The Kidbrook Elm.*
7 cornubiénsis *Hort.* 716
U. *stricta*, Lindl., Lod.
*The Cornish Elm.*
8 sarniénsis - 716
U. *sarniénsis* Lodd. Cat.
*The Jersey Elm.*
9 tortuòsa - - 716
U. *tortuòsa* Lod. Cat.
*? Orme tortillard*, Fr.
*wisted Elm.*
B. *Ornamental or curious.*
10 fòliis variegàtis - 716
11 *b*etulæfòlia - 717
U. *betulæfòlia* Lod. Cat.
12 viminàlis *H. D.* - 717
U. *viminàlis* Lodd. Cat.
13 parvifòlia - 717
U. *parvifòlia* Jac. Schœn.
U. *microphýlla* Pers.
U. *pùmila var.β (transbaïcalénsis)* Pall. Ross.
U. *pùmila* Willd. Sp. Pl.
U. *pùmila fòliis párvis*, &c.
U. *hùmilis* Enum. Stirp. Ruth.
14 planifòlia - 717
U. *planifòlia* Hort.
15 chinénsis - 717
U. *chinénsis* Pers.
*Thé de l'Abbé Gallois; Orme nain*, Fr.
16 cucullàta *Hort.* 717
17 concavæfòlia *H.* 717
18 fòliis aúreis *Hort.* 717
19 nàna *Hort.* - 717
*Other Varieties* - - 717

2. (c.) suberòsa *M.* 718
U. *campéstris* Woodv. Med. Bot.; U. *campéstris* and *Theophrásti Du Ham. Arb.*, U. *vulgatíssima, folio lato scabra* Ger. Emac.; U. *montàna* Cam. Epit.: *common Elm Tree*, Hunter's Evel. Syl.: *l'Orme Liège, l'Orme fungeux*, Fr.
1 vulgàris - - 718
U. *suberòsa* Hort. Dur.
*The Dutch cork-barked Elm.*
2 fòliis variegàtis 718
U. *suberòsa variegàta* Ht. Dur.
3 álba - - 719
U. *suberòsa álba* Masters.
4 erécta *Lodd. Cat.* 712
5 The broad-lvd Hertfords. Elm, *Wood* 719
6 The narrow-lvd Hertfords. Elm, *Wood* 719

3. (c.) màjor *Smith* 719
U. *holländica* Mill. Dict.; U. *màjor holländica*, &c., Pluk. Alm.; U. *màjor, ampliore folio*, &c., Du Ham. Arb.; *Tilia m.ás* Matth. Valgr., U'*lmus latifòlia* Michx. N. Amer. Syl.

4. effùsa *Willd.* - 719
U. *ciliàta* Ehrh. Arb., U. *pedunculàta* Lam. Dict., U. *octándra* Schk. Bot. Handb.; U. *fòlio latíssimo*, &c., Buxb. Hal.; U. *lævis* Pal. Ross.: *l'Orme pédonculé*, Fr.

5. montàna *Bauh.* - 720
The Scotch *or* Wych Elm.—U. *glàbra* Huds., U. *effùsa* Sibth., U. *scàbra* Mill. Dict., U *nùda* Ehrh., U. *campéstris* Willd. Sp. Pl., U. *campéstris latifòlia* Hort. Par.: *Wych Hazel* of old authors.
*Varieties.*
A. *Timber Trees.*
1 vulgàris - - 720
2 rugòsa *Masters* 720
U. *rugòsa* Lodd. Cat.
3 màjor *Masters* - 720
4 mìnor *Masters* - 720
5 cebennénsis *Hort.* 720
*The Cevennes Elm.*
6 nìgra - - 720
U. *nìgra* Lodd. Cat.
*The black Irish Elm.*
7 austràlis *Hort.* - 720
B. *Ornamental or curious.*
8 péndula - - 721
U. *péndula* Lodd. Cat.
U. *glàbra decúmbens* Hort. Dur.
U. *horizontàlis* Hort.
U. *rùbra* Hort. Soc. Gard.
9 fastigiàta *Hort.* 721
U. *glàbra replicàta* Hort. Dur.
U. *Fórdii Hort.*
U. *exoniénsis* Hort.
*Exeter Elm, Ford's Elm.*
10 crípsa - - 721
? U. *crípsa* Willd.
*The curled-leaved Elm.*
*Other Varieties* - - 721

6. (m.) glàbra *Mill.* 722
U. *montàna β* Fl. Br., U. *fòlio glàbro* Ger. Emac., U. *campéstris var.* 3. With.: *the feathered Elm.*
*Varieties.*
A. *Timber Trees.*
1 vulgàris - 723
*The common smooth-leaved Elm.*
2 végeta - - 723
U. *montàna végeta* Hort. Soc. Gard.
U. *americàna* Masters.
*The Huntingdon Elm, the Chichester Elm, the American Elm*, and perhaps *the Scampston Elm.*
3 var. - - 723
*The Scampston Elm.*

4 màjor - - 723
U. *glàbra màjor* Hort. Dur.
*The Canterbury Seedling.*
5 glandulòsa *Lindl.* 723
6 latifòlia *Lindl.* - 723
7 microphýlla *Hort.* 723
U. *g. parvifòlia.*

B. *Ornamental or curious.*

8 péndula - - 723
U. *campéstris pén.* Hort.
*The Downton Elm.*
9 variegàta *Hort.* 723
10 ramulòsa *Booth* 723

7. álba *Kit.* - - 723
8. americàna *L.* - 723
*The white Elm*, Amer.: *the Canadian Elm, the American white Elm.*
1 rùbra *Ait. H. K.* 724
2 álba *Ait. Hort. K.* 724
? U. *mollifòlia* R. & S.
3 péndula *Pursh S.* 724
4 incìsa *Hort.* - 724
5 fòliis variegàtis *H.* 724

9. (a.) fúlva *Michx.* 724
The slippery Elm.—U. *rùbra* Mx. Arb.: *Orme gras*, Fr.: *red Elm, red-wooded Elm, Moose Elm.*

10 alàta *Mx.* - - 725
U. *pùmila* Walt. Fl. Carol.: *the Wahoo* of the North American Indians.

II. PLA'NERA Gmel. 723
R*hámnus* Pall., Güldenst.; U'*lmus* various authors, as to the *Plánera Richárdi.*

1. Richárdi Mx. - 726
The Zelkoua Tree.—*P. crenàta* Mx. Mém. sur le Zelkoua, *P. carpinifòlius* Wats. Dend. Brit., *P. crenàta* Desf., R*hámnus carpinifòlius* Pall. Fl. Ross., R. *ulmóides* Güldens. It., U'*lmus crenàta* Hort. Par., U. *parvifòlia* Willd. Baum., U. *campéstris* Walt. Fl. Car., U. *polýgama* Richard Act. Paris, U. *nemoràlis* Ait. Hort. Kew.; U. *fòliis crenàtis bàsi æquálibus, fructu ovóideo non compresso*, Poiret Encyc. Meth.: *le Zelkoua*, or *Orme de Siberie*, Fr.; *Richard's Palmere*, Ger.

2. Gmèlini Mx. - 726
*P. ulmifòlia* Mx. Arb. Amer., *P. aquática* Willd. Sp. Pl., *Anónymus aquáticus árbor*, &c. Walt. Carol.

III. CE'LTIS *Tourn.* 727
The Nettle Tree.—L*ôtus* of Lobel and other authors: *Micocoulier*, Fr.; *Züngelbaum*, Ger.; *Celto*, Ital.

1. austràlis *L.* - - 727
L*ôtus árbor* Lob. Ic., L*ôtus sive* C*éltis* Cam. Epit.: *Lote Tree: Micocoulier austral, Micocoulier de Provence, Fabrecoulier, Fabrecoulier des Provençaux* (N. Du Ham.), Fr.; *Arcidiavolo*, Ital.
*Variety* - - - - 728

2. (a.) caucásica *W.* 728
3. Tournefórtii Lam. 728
C. *orientàlis minor, fóliis minoribus et crassioribus, fructu flavo*, Tourn. Cor.; C. *orientàlis* Mill. Dict., but, according to N. Du Ham., not of Lin.: *Micocoulier du Levant, Micocoulier d'Orient*, Fr.; *Morgenländischer Züngelbaum*, Ger.

4. (T.) sinénsis *Pers.* 729
5. Willdenovi*àna* S. 729
C. *sinénsis* Willd. Enu. Sup., Willd. Baum.

6. occidentàlis *L.* - 729
The North American Nettle Tree.—C. *fructu obscùro purpurascénte* Tourn. Inst., C. *obliqua* Mœnch: *Nettle Tree, Sugar Berry*, Amer.; *Bois inconnu*, Illinois; *Micocoulier de Virginie*, Fr.
2 cordàta *Willd.* - 729
3 scabriúscula *Willd.* 729
C. *austràlis* Willd. Arb.
C. *? o. β tenuifòlia* Pers.
C. *áspera* Lodd. Cat.
C. *orientàlis* Hort.

7. crassifòlia *Lam.* - 730
The Hackberry.—C. *cordifòlia* L'Hérit. Hort. Par., C. *cordàta* Desfont.: *Hagberry*, or *Hoop Ash*, Amer.; *Micocoulier à Feuilles en Cœur*, Fr.

8. lævigàta *Willd.* - 730
9. pùmila *Ph.* - - 731

*Other Species of Celtis.*—C. orientalis *L.* - - 731

## *Juglandàceæ.*

I. JU'GLANS *L.* - 732
The Walnut Tree.—*Noyer*, Fr.; *Walnuss*, Ger.; *Noce*, Ital.

1. règia *L.* - - 732
N*úx Jùglans* Dod. Pempt.; N*úx Jùglans, seu règia vulgàris*, Bauh. Pin.: *Noyer commun*, Fr.; *Noseguier*, Provence; *gemeine Walnuss*, Ger.
2 máxima - - 733
N*úx Jùglans frúctu máximo* Bauh. Pin.
*Noix de Jauge*, Bon Jard.
*Clawnut* in Kent; *Bannut* in Warwickshire.
3 ténera - - 733
N*úx Jùglans frúctu ténero et frágile putámine* Bauh. Pin.
*Nayer à Coque tendre, Noyer Mésange* Bon Jard. l. c.; *Noyer de Mars* in Dauphiné.
*The thin-shelled*, or *Titmouse, Walnut.*
4 serótina *Desf.* - 733
N*úx Jùglans frúctu serótino* Bauh. Pin.
*Noyer tardif, Noyer de la Saint Jean*, Bon Jard. 1836, *Noyer de Mai* in Dauphiné.
5 laciniàta - - 733
N*úx Jùglans fóliis laciniàtis* Reneaulm.
*Jùglans heterophýlla* Ht.
J. *filicifòlia* Lodd. Cat.
*The Fern-leaved Walnut Tree.*
*Other Varieties* - - 733

2. nìgra *L.* - 734
*The black Walnut, the black Hickory Nut*, N. Amer.; *Noyer noir*, Fr.; *Noce nera*, Ital.
*Varieties* - - - 735

3. cinèrea *L.* - - 735
The Butter-nut.—J. *cathártica* N. Amer. Syl., J. *oblónga* Mill. Dict.: *Oil-nut, White Walnut*, Amer.; *Noyer cendré*, Fr.; *graue Walnuss*, Ger.

II. CA'RYA *Nutt.* - 735
The Hickory Tree.—*Jùglans sp.* Lin., Willd., Michx.; Hicòrius *Rafinesque*: *Hickory* Amer.

1. olivæfórmis *Nutt.* 736
The Pacane-nut Hickory.—*Jùglans rùbra* Gærtn. Sem.; J. *cylíndrica* Lam. Encycl., N. Du Ham.; J. Pècan *Mühlenb.*; J. *angustifòlia* Ait. Hort. Kew.; J. *olivæfórmis* Mx. Fl. Bor. Amer.: *Pecan-nut, Illinois-nut*, Amer.; *Pécanier, Pacanus, Noyer Pécanier*, Fr.

2. amàra *Nutt.* - 737
*Jùglans amàra* Mx. Arb.: *Bitter-nut, White Hickory, Swamp Hickory*, Amer.

3. aquática *Nutt.* - 737
The Water Bitter-nut Hickory.—*Jùglans aqu tica* Mx.

4. tomentòsa *Nutt.* 738
The Mocker-nut Hickory.—*Jùglans álba* Lin. Sp. Pl., J. *álba* Mill. Dict., J. *tomentòsa* Mx. Fl. Bor. Amer.: *White-heart Hickory, common Hickory*, Amer.; *Noyer dur*, Illinois.
2 máxima *Nutt.* - 739

5. álba *Nutt.* - 739
The Shell-bark Hickory.—*Jùglans álba* Mx. Fl. Bor. Amer., J. *álba ovàta* Marsh. Arb., J. *squamòsa* Mx. Arb., J. *compréssa* Gærtn. Sem.: *Shag-bark Hickory, Scaly-bark Hickory, Kisky Thomas Nut*, Amer.; *Noyer tendre*, Illinois.

6. sulcàta *Nutt.* - 739
*Jùglans laciniòsa* Mx. Arb., J. *mucronàta* Mx. Fl. Bor. Amer., J. *sulcàta* Willd. Arb.: *thick Shell-bark Hickory, Springfield Nut, Gloucester Nut*, Amer.

7. porcìna *Nutt.* - 740
*Jùglans porcìna α obcordàta* Mx. Arb.; J. *porcìna var. with fruit round, and somewhat rough*, Mx. N. Amer. Sylv.; J. *obcordàta* Mühlenb.: *Pig-nut, Hog-nut, Broom Hickory.*
2 glàbra - - 741
*Jùglans porcìna β ficifórmis* Mx. Arb.
J. *glàbra* Mü.a.

8. myristicæfórmis *N.* 741
The Nutmeg Hickory.—*Jùglans myristicæfórmis* Michx. Arb.

9. microcárpa *Nutt.* 742
*Other Species of Càrya.* — *C.* ambígua (*Jùglans ambígua* Mx.), *C.* pubéscens *Link*, *C.* rígida (*J. rígida* Lodd. Cat.), *C.* integrifòlius *Spreng.*, Hicòrius *integrifòlius* Rafin. 427

III. PTEROCA`RYA *Kunth*
*Jùglans sp.* Lin.

1. caucásica *Kunth* 743
*Jùglans Pterocàrya* Michx. Fl. Bor. Amer., Mey. Verz. Pflanz. Cauc.; *Rhús obscùrum* Bieb. Fl. Taur. Cauc.; *J. fraxinifòlia* Lamond MS., N. Du Ham.; *Fráxinus lavigàta* Hort. Par.

## *Salicàceæ.*

I. SA`LIX *L.* - - 744
The Willow.—*Harab*, Hebrew; *Ilea*, Gr.; *Salix*, Latin; *Saule*, Fr.; *Weide* and *Felber*, Ger.; *Salicio*, Ital.; *Sauze*, Span.; *Wide*, Swed.; *Wilge*, Flem.; *Withig*, Anglo-Sax.; *Willow*, *Withy*, *Sallow*, *Osier*, English; *Saugh*, Scotch.

Group i. *Purpùreæ* Koch.
Osier Willows, with one Stamen in a Flower.

1. purpùrea *L.* - 746
S. *purpùrea* Koch. Comm.
*Varieties* - - - 747

2. hèlix *L.* - - 747
The Rose Willow.—S. *purpùrea var.* Koch Comm., ? S. *oppositifòlia* Host Sal. Austr.

3. Lamberti*àna* Sm. 747
The Boyton Willow.—S. *purpùrea β* Koch Comm.

4. Woolgari*àna* Bor. 747
S. *monandra* Sal. Wob. No. 4., S. *monándra var.* Hoffm. Hist. Sal.

5. Forby*àna* Smith 748
The fine Basket Osier.—S. *fissa* Lin. Soc. Trans., not of Hoff. (*Smith.*); S. *rùbra β* Koch Comm.

6. rùbra *Huds.* - 748
S. *tineàris* Walker's Essays.

Group ii. *Acutifòliæ* Bor.
(*Syn.* Pruinòsæ *Koch.*)
Willows with dark Bark, covered with a fine Bloom.

7. acutifòlia *Willd.* - 748
S. *violàcea* Andr. Bot. Rep., but not of Willd., nor the S. *cáspica* Hort. (*Willd.*)

8. daphnòides *Villars* 749
S. *præcox* Hoppe in Sturm D. Fl., S. *bigémmis* Hoffm. Germ., S. *cinèrea* Host Sal. Austr.

9. pomeránica *Willd.* 749
S. *daphnòides* Villars, *var. with narrower leaves, and more slender catkins*, Koch Comm.

Group. iii. *Triándræ* Bor.
(*Syn.* Amygdálinæ *Koch.*)

10. undulàta *Koch* 749
S. *lanceolata* Smith.
2 undulàta *Forbes* 751
3 lanceolàta *Sm.* 751
4 var. having catkins androgynous - 751

11. *h*ippophaefòlia *T.* 751

12. triándra *L.* - 751
S. *amygdálina, part of*, Koch Comm.
2 gállica - - 752
3 Hoppe*àna* - - 752
S. *andrógyna* Hoppe.
4 *S.* triándra undulàta *Mertens, ined.* — Approaches to S. *amygdálina.*

13. Hoffmann*iàna* S. 752
S. *triándra* Hoff., and ? of German botanists in general.

14. amygdálina *L.* 752
S. *amygdálina, in part*, Koch Comm.

15. Villars*iàna* Flüg. 752
S. *triándra* Villars Delph., S. *amygdálina var.* Koch Com.

Group iv. *Pentándræ* Bor.
Trees having Flowers with 3—5 Stamens.

16. pentándra *L.* - 754
S. *pentándra, part of*, Koch Comm.: *the Sweet Willow, the Bay-leaved Willow.*
2 hermaphrodítica 754

17. Meyer*iàna* Willd. 754
S. *cuspidàta* Schultz, S. *tinctòria* Smith, S. *pentándra β* Linn., S. *hexándra* Ehrh., S. *Ehrhart*iàna *Smith*, S. *tetrándra* Willd.

18. lùcida *Mühlenb.* 754
S. *Forbès*ii *Swt. Hort. Brit.* ed. 1830.

Group. v. *Frágiles* Borrer.
Trees with their Twigs brittle at the Joints.

19. babylónica - 757
The Weeping Willow.—S. *propéndens* Sering. Sal. Hel., S. *orientàlis, &c.*, Tourn.; S. *arábica, &c.*, C. Bauh.: *Saule pleureur, Parasol du grand Seigneur*, Fr.; *Trauer Weide, Thränen Weide*, Ger.
1 vulgàris fœm. *H.* 758
2 Napoleòn*a* Hort. 758
3 crispa *Hort.* - 758
S. *annulàris* Forb. in S.W.
*The ring-leaved Willow.*

20. decípiens *Hoffm.* 758
The white Welsh, or varnished, Willow.—S. *americàna* Walk. Essays on Nat. Hist., S. *frágiles, part of*, Koch Com.

21. montàna *Forbes* 759

22. frágilis *L.* - - 759
The Crack Willow.—S. *frágilis, in part*, Koch Comm.

23. monspeliénsis *F.* 760

24. Russell*iàna* Sm. 760
The Duke of Bedford's Willow.—? S. *frágilis* Woodv.: *the Dishley*, or *Leicestershire, Willow*; in some counties, *the Huntingdon Willow*: S. *péndula* Ser., S. *viridis* Fries, S. *rùbens* Schrank.

25. Pursh*iàna* Bor. 761

Group vi. *Albæ* Borrer.
Trees of the largest Size, with the Foliage whitish.

26. álba *L.* - - 761
S. *álba, part of*, Koch Com.: *the Huntingdon*, or *Swallow-tailed, Willow.*
2 cærùlea - - 761
S. *álba var.* Smith, Fl. B.
S. *cærùlea* Smith Eng. B.
*The upland*, or *red-tinged, Willow*, Pontey
*The Leicester Willow*, Davy's Agric. Chem.
*Blue Willow*, Smith.
3 crispa *Hort.* - 761
4 ròsea *Lodd. Cat.* 761

27. vitellìna *L.* - 763
The Golden Osier.—S. *álba* Koch Comm.

Group vii. *Nìgræ.*
Extra-European Kinds allied to the Kinds of one or all of the the three preceding Groups.

28. nìgra *Mühl.* - 768
The dark-branched American Willow.—S. *carolinià*na Mx. Fl. Bor. Amer., S. *pentándra* Walt. Fl. Car., S. *vulgàris* Clayt. Fl. Virg.

29. Humboldt*iàna* - 764

30. Bonpland*iàna* 764

Group viii. *Prinòides* B.
Shrubs, mostly Natives of N. America, and used in Basket-making.

31. rígida *Mühl.* - 764

32. prinòides *Pursh* 764

33. díscolor *Mühl.* 764

34. angustàta *Pursh* 764

35. confórmis *Forbes* 764

Group ix. *Gríseæ* Borrer
Chiefly Shrubs, Natives of N America.

36. viréscens *Forbes* 765
S. *hippophaefòlia* Lodd.

37. refléxa *Forbes* 765
38. virgàta *Forbes* 765
39. Lyònii ? Schl. 765
40. Houston*iàna* P. 765
S. *tristis* Lodd. Cat. 1836.
41. falcàta *Pursh* - 765
42. grísea *Willd.* - 765
43. petiolàris *Smith* 765
S. *grísea* Willd. *var.* β *subglabràta* Koch Comm.
44. pennsylvánica *F.* 766
45. Mühlenberg*iàna* 766
46. trístis *Ait.* - 766
47. cordàta *Mühlenb.* 766

Gr. x. R*osmarinifòliæ* Bor.
Low Shrubs, with narrow-Leaves.

48. *r*osmarinifòlia *L.* 766
Sal. *rosmarinifòlia, part of,* Koch Comm.
49. angustifòlia *Borr.* 766
S. *arbúscula* Sm. Fl. Br., S. *rosmarinifòlia* α Koch Comm.
50. decúmbens *Forbes* 766
51. fuscàta *Pursh* - 766

Group xi. *Fúscæ* Borrer.
Mostly procumbent Shrubs.

52. fúsca *L.* - 767
S. *rèpens* Hook. Fl. Scot.; S. *rèpens* Koch, *part of,* Koch Comm.
1 vulgàris - - 767
S. *f. var.* α Hook. Br. Fl.
S. *fúsca* Sm. Eng. Bot., Forbes in Sal. Wob.
S. *rèpens* Koch, β Koch Comm.
2 rèpens - - 767
S. *f. var.* β Hook. Br. Fl.
S. *rèpens* Lin. Spec. Pl., Forbes in Sal. Wob.
3 prostràta - 767
S. *f. var.* γ Hook. Br. Fl.
S. *prostràta* Sm. Eng. Bot., Forbes in S. Wob
4 fœ'tida - - 767
S. *f. var.* δ Hook. Br. Fl.
S. *fœ'tida* Sm. Eng. Fl
5 incubàcea - 767
S. *f.* 5 Hook. Br. Fl
S. *incubàcea* Lin. Sp. Pl. Forbes in Sal. Wob.
6 argéntea - - 767
S. *f.* 6 Hook. Br. Fl.
S. *argéntea* Sm. Eng. Bot. Forbes in Sal. Wob.
53. Don*iàna* Smith 768
*The rusty-branched Willow.*

Group xii. *Ambíguæ* Bor.
Shrubs.

54. ambígua *Ehrh.* 768
S. *ambigua* Koch, *part of,* Koch Com.
1 vulgàris - - 768
S. *a.* α Borrer in Eng. Bot. Suppl.
2 màjor - - 768
S. *a.* β *májor* Borrer in Eng. Bot. Suppl.
? S. *ambigua* β Hook.
S. *versifòlia* Sering.
*Saules de la Suisse.*
3 spathulàta - 768
S. *a.* γ *spathulàta* Borrer in Eng. Bot. Suppl.
S. *ambígua* γ Hook. Br. Fl.
S. *spathulàta* Willd. Sp. Pl.
4 undulàta - 769
S. *a.* δ *undulàta* Borr. in Eng. Bot.
S. *spathulàta* Willd. *var. undulàta* Mertens.
55. finmárchica *W.* 769
56. versícolor *F.* - 769
57. *a*laternöìdes *F.* 769
58. protea*æfòlia* Sch. 769
Erroneously referred to S. *ambígua* in Hook. Brit. Flor. ed. 2. (Borrer MSS.)

Gr. xiii. *Reticulàtæ* Bor.
Leaves reticulated and coriaceous.

59. reticulàta *L.* - 769

Group xiv. *Glaúcæ* Bor.
Small, upright, with soft silky Leaves.

60. *e*læagnöìdes *Sch.* 770
61. glaúca *L.* - 770
S. *appendiculàta* Fl. Dan., Willd. Sp. Pl.
62. serícea *Villars* 770
S. *glaúca* Koch Comm.
63. Lappònum *L.* 770
S. *arenària* Fl. Dan.
64. obtusifòlia *Willd.* 771
65. arenària *L.* - 771
66. obovàta *Pursh* 771
67. canéscens *Willd.* 771
68. Stuart*iàna* Sm. 771
69. pyrenàica *Gou.* 771
70. Waldstein*iàna* W. 771

Gr. xv. *Viminàles* Bor.
Willows and Osiers. — Mostly Trees or large Shrubs, with long pliant Branches, used for Basket-making.

71. subalpìna *F.* - 771
72. cándida *Willd.* 771
73. incàna *Schr.* - 771
S. *ripària* Willd. Sp. Pl., S. *lavandulæfòlia* Lapeyr. Ab., S. *angustifòlia* Poir. in Du Ham. Arb., S. *rosmarinifòlia* Gouan Hort., S. *viminàlis* Vill. Delph.
74. lineàris *Forbes* 772
? S. *incàna var. lineàris* Borrer in a Letter.
75. viminàlis *L.* - 772
The common Osier.— S. *longifòlia* Lam. Fl. Fr.
76. stipulàris *Smith* 772
The auricled-leaved Osier.
77. Smith*iàna* Willd. 772
78. mollíssima *Ehr.* 772
79. holoserícea *Hk.* 772
80. Michel*iàna* Forb. 772
81. ferrugínea *And.* 773
82. acuminàta *Sm.* 773
The large-leaved Sallow. — S. *lanceolàta* Seringe.

Group xvi. *Cinèreæ* Bor.
Sallows. — Trees and Shrubs, with roundish shaggy Leaves, and thick Catkins.

83. pállida *Forbes* 773
84. Willdenov*iàna* 773
85. Pontederà*na* W. 773
S. *pùmila alpìna nígricans, folio oleagino serrato* Ponted. Comp.; S. *Pontedèræ Bellardi App. ad Fl. Ped.*
86. macrostipulàcea 773
87. incanéscens ? *Sc.* 773
88. pannòsa *Forbes* 773
89. mutábilis *Forbes* 776
90. cinèrea *L.* - 776
The grey Sallow.—S. *cinèrea var.* Koch Comm.
91. aquática *Smith* 776
92. oleifòlia *Smith* - 776
93. geminàta *Forb.* - 776
94. críspa *Forbes* - 776
95. aurìta *L.* - 776
96. latifòlia *Forbes* 776
97. càprea *L.* - - 776
*The great round-leaved Sallow, common Black Sallow, Saugh* in Yorkshire, *Grey Withy.*
98. sphacelàta *Sm.* 777

Gr. xvii. *Nigricántes* B.
Shrubs with long Branches, or small Trees. Mostly Sallows.

99. austràlis *Forbes* 778
100. vaudénsis *For.* 778
101. grisophýlla *F.* 778
102. lacústris *Forb.* 778
103. crassifòlia *Frb.* 778
104. *c*otinifòlia *Sm.* 778
The Quince-leaved Sallow. — S. *spadicea* Villars Dauph., S. *phylicifòlia var.* Koch Comm.
105. hírta *Smith* - 778
S. *picta* Schleicher is the fem. of S. *hirta* (Forbes in Sal. Wob.)
106. rivulàris *Forb.* 778
107. atropurpùrea 778
108. coriàcea *Forb.* 778
109. nígricans *Smith* 778
S. *phylicifòlia* β Lin. Sp Pl.
110. Anderson*iàna* 779
The Green Mountain Sallow.

— S. *phylicifòlia var.* Koch Comm.

111. damascèna *F.* 779
S. *damascenifòlia* Anderson's MSS., S. *phylicifòlia* Lin.

112. Ansoniàna F. 779
113. helvética *Forb.* 779
114. fírma *Forbes* 779
115. carpinifòlia *Sch.* 779
116. rotundàta *Frb.* 779
? S. *rotundifòlia* Host.

117. dùra *Forbes* 779
118. Forsteriàna Sm. 779
S. *phylicifòlia var.* Koch Comm.

119. rupéstris *Donn* 781
120. tenuifòlia *L.* 781
S. *arbúscula* Wahlenb., *var.* Koch Comm., S. *tenuifòlia* of Eng. Bot. is S. *bícolor* Hook. Brit. Fl.

121. propínqua *Bor.* 781
*The flat-leaved upright Mountain Willow.*

122. petræ'a *Ander.* 781
123. Ammanniàna 782
124. atrovìrens *Frb.* 782
125. strépida *Forb.* 782
126. sórdida *Forbes* 782
127. Schleicheriàna 782
128. grisonénsis *F.* 782

Gr. xviii. *Bicolòres* Bor.
Bushy Shrubs, with Leaves green above and glaucous beneath.

129. tenùior *Borrer* 782
130. laxiflòra *Borrer* 782
131. laúrina *Smith* 783
The shining dark-green Willow.—S. *bícolor* Sm. Eng. Bot., S. *arbúscula* Wahlenb., *var.* Koch Comm.

132. pàtens *Forbes* 783
133. radìcans *Smith* 783
S. *phylicifòlia* Lin. Fl. Lapp.

134. Borreriàna Sm. 783
*The dark upright Willow.*

135. Davalliàna Sm. 783
136. tétrapla *Smith* 783
137. ramifúsca *Forb.* 783
138. Forbesiàna - 783
139. Weigeliàna Bor. 783
S. *Wulfeni*àna *Smith Eng. Fl.*

140. nìtens *Anders.* 784
141. Croweàna Smith 784
S. *arbúscula* Wahlenb., *var.* Koch Comm.; S. *hùmilis* Schl. is cited in Sal. Wob. as the fem. of S. *Croweàna Smith*; ? S. *heterophýlla* Host.

142. bícolor *Ehrh.* 784
S. *tenuifòlia* Smith Eng. Bot. as to the figure S. *floribùnda* Forb.

143. phillyreifòlia *B.* 784
144. Dicksoniàna Sm. 785

Gr. xix. *Vacciniifòliæ* Bor.
Small and generally procumbent Shrubs.

145. vacciniifòlia *W.* 785
S. *prunifòlia, part of,* Koch Comm.

146. carinàta *Smith* 785
147. prunifòlia *Smith* 785
148. venulòsa *Smith* 785
149. cæ'sia *Villars* 785
S. *myrtillòìdes* Willd. Sp. Pl., S. *prostràta* Ehrh. Pl. Select.

Gr. xx. *Myrtillòìdes* B.
Small Bilberry-like shrubs, not natives of Britain.

150. myrtillòides *L.* 786
The Bilberry-leaved Willow.—S. *élegans* Besser En. Vol.

151. pedicellàris *Ph.* 786
152. planifòlia *Ph.* 786

Gr. xxi. *Myrsinìtes* Borrer.
Small bushy Shrubs.

153. *M*yrsinìtes *L.* 787
S. *Myrsinites* β Smith Eng. Fl.; S. *arbutifòlia* Willd. Sp. Pl., probably S. *Macnab*iàna *Macgillivray in Jameson's Edin. Phil. Journ.*

154. *b*etulifòlia *Forb.* 787
155. procúmbens *For.* 787
S. *læ'vis* Hook. Br. Fl., S. *retùsa* Wither. Bot. Arr. ed. 4.

156. retùsa *L.* - 787
S. *serpyllifòlia* Jacq. Austr.

157. Kitaibeliàna W. 787
158. U'va-úrsi *Pursh* 787
159. *s*erpyllifòlia *Sco.* 787
S. *retùsa* Koch, γ Koch Comm.

160. cordifòlia *Pursh* 788

Gr. xxii. *Herbàceæ* Borr.
Very low Shrubs, scarcely rising an inch above the ground.

161. herbàcea *L.* - 788
162. polàris *Wahlenb.* 788

Gr. xxiii. *Hastàtæ* Borr.
Low Shrubs, with very broad leaves, and exceedingly shaggy and silky catkins.

163. hastàta *L.* - 788
2 serrulàta - 789
S. *hastàta* Willd. Sp. Pl.
3 *m*alifòlia - 789
m*alifòlia* Sm. Eng. Bot.
4 arbúscula - 789
S. *arbúscula* Wahl. Fl.
S. *arbúscula* β L. Fl. Su.
S. *arbúscula* γ Lin. Sp. Pl.

164. lanàta *L.* - 789

Gr. xxiv. *Miscellàneæ* A.
Kinds of Sàlix described in *Sal. Wob.*, and not included in any of the preceding Groups.

165. ægyptìaca *L.* 789
166. alpìna *Forbes* 789
167. *berberi*fòlia *Pall.* 790
168. tetraspérma *R.* 790
169. *u*lmifòlia *Forbes* 790
170. villòsa *Forbes* 790

Gr. xxv. *Miscellàneæ* B.
Kinds of Sàlix introduced, and of many of which there are Plants at Messrs. Loddiges', but which we have not been able to refer to any of the preceding Groups - 790

*Appendix.*
Kinds of Sàlix described or recorded in Botanical Works, but not introduced into Britain, or not known by these names in British Gardens 790

II. *Po'*PULUS *Tourn.* 819
The Poplar.—*Peuplier*, Fr.; *Pappel*, Ger.; *Pioppo*, Ital.; *Poplier*, Dutch; *Álamo*, Span.

1. álba *L.* - - 819
The Abele Tree.—P. *álba latifòlia* Lob. Ic.; P. *màjor* Mill. Dict., P. *nívea* Willd. Arb., P. *álba nívea* Mart. Mill.; *Leukē*, Dioscorides: *the great white Poplar, great Aspen, Dutch Beech: Peuplier blanc, Ypréau, Blanc de Hollande, Franc Picard*, Fr.; *Aubo*, or *Aoubero*, in some provinces; *weisse Pappel, Silber Pappel, weisse Aspe, Weissalber baum*, Ger.; *Abeelboom*. Dutch.
2 hýbrida *Bieb.* - 820
P. *álba* Bieb. l.c.
? P. *intermèdia* Mertens.
P. *a. crassifòlia* Mertens.
P. *grísea* Lodd. Cat.
3 acerifòlia - - 820
P. *acerifòlia* Lodd. Cat.
P. *quercifòlia* Hort.
P. *palmàta* Hort.
P. *arembérgica*, Lod. Cat.
P. *bélgica* Lodd. Cat.
4 cándicans - - 820
P. *cándicans* Lodd. Cat.
P. *nívea* Lodd. Cat.
P. *tomentòsa* of the Hawick Nursery.
*The hoary Poplar* of the Edinburgh Nurseries.
5 ægyptìaca *Hort.* 820
P. *a. pállida* Hort.
*Egyptian white Poplar.*
6 pendula - 820
P. *a. var. grácilis ràmis pendéntibus* Mertens.

2.(a.) canéscens *Sm.* 820
The common white Poplar.—P. *álba* Mill. Dict., P. *álba fòliis minóribus* Raii Syn., P. *álba fòlio minòre* Bauh. Hist.: *Peuplier grisaille*, Fr.

3. trémula *L.* - - 821
The Aspen. — P. *libyca* Raii Syn., P. *hýbrida* Dod. Pempt., P. *nigra* Trag. Hist., P. *péndula* Du Roi: *Aspe, le Tremble*, Fr.; *la Tremola, Albcralla, Alberetto*, Ital.; *Zitter-Pappel, Espe*, Ger.
2 péndula - - 822
P. *péndula* Lodd. Cat.
P. *supiua* Lodd. Cat.
3 lævigàta - - 822
P. *lævigàta* Ait. Hort. Kew.

4. (t.) trépida *Willd.* 822
The American Aspen. — P. *tremuloïdes* Michx. N. Amer. Sylv., N. Du Ham.

5. (t.) grandidentàta 823
The N. American large Aspen.
2 péndula *Michx.* - 823

6. græ`ca *Ait.* - - 823
The Athenian Poplar.

7. nìgra *L.* - - 824
The common black Poplar. — P. *álba* Trag. Hist., P. *viminea* Du Ham. Arb., P. *vistulénsis* Hort., P. *polónica* Hort.: *Aigeiros*, Greek; *Kabaki*, Modern Greek: *the old English Poplar*, Suffolk; *the Willow Poplar*, Cambridgeshire; *Water Poplar;* the fem. of *P.* nìgra is called *the Cotton Tree* at Bury St. Edmunds: *Peuplier noir, Peuplier liard, Osier Blanc*, Fr., *schwarze Pappel*, Ger.
2 víridis *Lindl.* - 824
P. *víridis* Lodd. Cat.

8. (? n.) canadénsis 824
P. *lævigàta* Willd. Sp. Pl., Pursh, Spreng., but not of Hort. Kew.; P. *monilifera* Hort. Par.: *Cotton-wood*, Michx.: *Peuplier de Canada*, Fr.

9. (? n.) betulifòlia - 825
P. *nìgra* Michx. Fl. Bor. Am.; P. *hudsónica* Mich. Arb., N. Amer. Syl.; P. *hudsoniàna* Bosc & Lodd.: *American black Poplar*, Amer.: *Peuplier de la Baie d'Hudson*, Fr.

10. (? n.) monilífera 825
The black Italian Poplar. — P. *virginiàna* Lin. &c., P. *glandulòsa* Mœnch Meth., P. *carolinénsis* Mœnch Weissenst., P. *nigra itálica* Lodd. Cat. 1836, P. *nigra americàna* Ibid., P. *acladésca* Lindl. in Encyc. of Pl., ? P. *marylándica* Bosc: *Virginian Poplar, Swiss Poplar, Canadian* or *Berry-bearing Poplar*, Mill.: *Peuplier Suisse, Peuplier triphilon, Peuplier de Virginie*, Dumont.
2 Lindley*àna* Booth 826
*The new waved-leaved Poplar*, Hort.
3 fòliis variegàtis - 826

11. fastigiàta *Desf.* - 827
The Lombardy Poplar. — P. *dilatàta* Ait. Hort. Kew., P. *nigra itálica* Du Roi Harbk., P. *itálica* Mœnch Weissenst., P. *itálica dilatàta* Willd., P. *pyramidàta* Hort., P. *pannónica* Jacq., P. *italica var. carolinénsis* Burgsdorf: *Cypress Poplar, Turin Poplar, Po Poplar: Peuplier d'Italie, Peuplier pyramidal*, Fr.; *Lombardische Pappel, Italianische Pappel*, Ger.; *Pioppo Cypresso*, Ital.

12. angulàta *Ait.* - 828
The Carolina Poplar. — P. *angulòsa* Michx. Fl. Bor. Amer., P. *heterophýlla* Du Roi Harbk., P. *macrophýlla* Lodd. Cat. 1836, P. *balsamifera* Mill. Dict.: *Mississippi Cotton Tree*, Amer.
2 nòva *Audib.* - - 828
3 Medùsæ Booth - 828

13. heterophýlla *L.* 829
P. *mágna fòliis ámplis*, &c., Gron. Virg., P. *cordifòlia* Burgsdorf, Lod. Cat. 1836; P. *argéntea* Michx. N. Amer. Syl.: *Cotton Tree*, Michx. N. Amer. Syl.

14. balsamífera *L.* - 830
The Tacamahac Tree. — P. Tacamahác *Mill. Dict.: the Tacamahac*, Amer.; *le Baumier*, Fr.; *Peuplier liard*, and also *Tacamahac*, in Canada; *Balsam Pappel*, Ger.
2 viminàlis - - 830
P. *viminàlis* Lodd. Cat.
P. *salicifòlia* Hort.
P. *longifòlia* Fischer, Pall.
3 latifòlia *Hort.* - 830
4 intermèdia *Hort.* 830
5 suavèolens - 830
P. *suavèolens* Fischer, Lod.
6 fòliis variegàtis - 830

15. cándicans *Ait.* - 831
The Ontario Poplar. — P. *macrophýlla* Lindl. in Encyc. of Pl., P. *latifòlia* Mœnch Meth., P. *ontariénsis* Desf. Hort. Par., P. *cordàta* Lodd. Cat. 1836, P. *canadénsis* Mœnch Weissenst., but not of Michx., which is *P.* lævigàta *Willd.: Balm of Gilead Tree*, Boston, N. Amer.; *Peuplier liard*, Canada; *Peuplier à Feuilles vernissées*, Fr.

## Betulàceæ.

I. A'LNUS *Tourn.* - 832
The Alder, — *Bétulæ species* Lin.: *Aunc*, Fr.; *Erle*, Ger.; *Ontano*, Ital.; *Aliso*, Span.

1. glutinòsa *Gærtn.* 832
*Bétulus A'lnus* Lin., B. *emarginàta* Ehrh. Arb.: *A'lnus* Raii Syn.: *Aunc*, Fr.; *gemeine Else*, or *Elser*, or *schwartz Erle*, Ger.; *Elsenboom*, Dutch; *Alno*, or *Ontano*, Ital.; *Aliso*, or *Alamo nigro*, Span.
2 emarginàta *Willd.* 832
3 laciniàta *Ait.* - 832
A. *g. incìsa* Hort.
4 quercifòlia *Willd.* 832
5 oxyacanthæfòlia - 832
A. *oxyacanthæfòlia* Lodd.
6 macrocárpa - 833
A. *macrocárpa* Lod. Cat.
7 fòliis variegàtis *H.* 833
*Other Varieties* - - 833

2. oblongàta *Willd.* - 834
A'*lnus fol. oblong, &c.*, Bauh.; A. *fòl. ovàto-lanceol., &c.* Mill. Dict.: *langliche Else*, Ger.
2 fòliis ellípticis *Ait.* 834
A. *pùmila* Lodd. Cat.

3. incàna *Willd.* - 834
B. A'*lnus var. incàna* Lin. Sp. Pl., B. *incàna* Lin. Suppl., B. *víridis* Vill. Dauph.: *weisse Erle, graue Else*, or *weisse Eller*, Ger.
2 laciniàta *Lod. C.* 834
3 glaúca - - 834
A. *glaúca* Mx. N. Amer. S.
B. *incàna var. glaúca* Ait. *Black Alder*, Amer.
4 angulàta *Ait.* - 834
*Other Varieties* - - 834

4. serrulàta *Willd.* - 835
*Bétula serrulàta* Ait. Hort. Kew., B. *rugòsa* Ehrh. Beitr., ? A. *americàna* Lod. Cat. 1836, ? A. *canadénsis* Lodd. Cat. 1836.: *common Alder*, Amer.; *Hazel-leaved Alder*.

5. undulàta *Willd.* - 835
*Bétula crispa* Ait. Hort. Kew., B. A'*lnus var. crispa* Mx. Fl. Bor. Amer.; A. *crispa* Pursh Fl. Amer. Sept., N. Du Ham.

6. cordifòlia *Lodd.* - 835
A. *cordàta* Tenore Prod., Hayne Dend.

7. víridis *Dec.* - - 836
A. *ovàta* Lodd. Bot. Cab., A. *fruticòsa* Schmidt, *Bétula ovàta* Schrank Sal., B. A'*lno-Bétulæ* Ehrh. Beytr., B. *víridis* Hort.

*Other Species of* A'*lnus.* — *A.* barbàta *Meyer.* (A. *obtusifòlia* Royle), *A.* subcordàta *Meyer*, *A.* jorrullénsis, *A.* acuminàta *H. & B.*, *A.* castaneifòlia *Mirb.* - 837

II. BE'TULA *Tourn.* 837
The Birch. — *Bouleau*, Fr.; *Betula*, Ital.; *Abedul*, Span.; *Betulla*, Port.; *Birke*, Ger.; *Berk*, Dutch; *Birk*, Danish and Scotch; *Biork*, or *Bork*, Swedish; *Beresa*, Russian; *Brzoza*, Polish.

*Leaves small. Natives chiefly of Europe.*

1. álba *L.* - - 838
B. *pubéscens* Ehrh. Arb., *Bétula* Raii Syn., B. *ætnénsis* Rafin.: *Bouleau commun*, Fr.; *gemeine Birke*, Ger.; *Bedollo*, Ital.
2 péndula *Smith* - 838
B. *péndula* Roth Germ.
B. *verrucòsa* Ehrh. Arb.
B. *péndulis virgulis* Loes.
3 pubéscens - - 838
B. *pubéscens* Ehrh. Beitr.
4 póntica - - 838
B. *póntica* Lod. Cat.
5 urticifòlia - - 839
B. *urticifòlia* Lod. Cat.
6 dalecárlica *L. Sup.* 839
7 macrocárpa *Willd.* 839

8 fòliis variegàtis - 839
*Other Varieties* - - 839
2. (? a.) dàùrica *Pall.* 840
B. *excélsa canadénsis* Wang. Beitr.: *Bouleau Sibérie*, Fr.
2 parvifòlia *Hayne* 840
3. (? a.) fruticòsa *Pall.* 840
B. *hùmilis* Schrank Sal., B. *quebeccénsis* Schrank der Gesells. Naturf. Freunde.
4. (? a) pùmila *L.* - 840
B. *nàna* Kalm Itin.
5. nàna *L.* - - 840
B. *nàna Succòrum* Bromel. Chl.Goth., B. *palùstris pùmila*, &c. Cels. Act. Suec.
2 stricta *Lodd. Cat.* 841
6. (? n.) glandulòsa *M.* 841
*Leaves large. Natives of North America.*
7. populifòlia *Ait.* - 841
B. *acuminàta* Ehrh. Beitr., B. *lénta* Du Roi Harb. Baum.: *White Birch*, and *Oldfield Birch*, Amer.
2 laciniàta - - 841
B. *laciniàta* Lodd. Cat.
3 péndula - - 841
B. *péndula* Lodd. Cat.
8. papyràcea *Ait.* - 842
B. *papyrifera* Michx. Fl. Bor. Amer., B. *lanceolata* Hort., B. *rùbra* Lodd. Cat. 1836, B. *canadénsis* Lodd. Cat., B. *nìgra* of the Paris Nurseries: *Canoe Birch*, *White Birch*, Amer.; *Betula da Carta*, Ital.
2 fúsca - - 842
B. *fúsca* Bosc.
3 trichóclada *Hort.* 842
4 platyphýlla *Hort.* 842
9. nìgra *L.* - - 843
B. *lanulòsa* Michx. Fl. Bor. Amer., ? B. *rùbra* Michx. Arb., B. *angulàta* Lodd. Cat. 1836: *Red Birch*, Amer.; *Betula da Canoa*, Ital.
10. excélsa *H. Kew.* 843
B. *lùtea* Michx. N. Amer. Syl.; ? B. *nìgra* Du Roi Harb., Baum.: *Yellow Birch*, Amer.
11. lénta *L.* - - 844
B. *carpinifòlia* Ehrh. Beitr., B. *nìgra* Du Roi Harb., under both these names, and also that of B. *lénta* in Lodd. Collection: *Black Birch*, *Cherry Birch*, *Canada Birch*, *Sweet Birch*, *Mountain Mahogany*. Amer.; *Bouleau Mérisier*, Fr.; *Betula della Virginia*, Ital.
*Species of Bétula not yet introduced.—B. Bhojpúttra* Wall., *B.* acuminàta *Wall.*, *B.* nìtida, *B.* cylindrostàchya - 845

## *Corylàceæ, or Cupulíferæ.*

I. QUE'RCUS *L.* - 846
The Oak.—*Ilex* Tourn., *Sùber* Tourn.: *Derw*, Celtic; *Aaack*, or *Ac*, Saxon; *Al*, *Alon*, or *Alhun*, Hebrew; *Drus*, Greek; *Chêne*, Fr.; *Eiche*, Ger.; *Bik*, Dutch; *Querzia*, Ital.; *Encina*, Span.

A. *Leaves deciduous.*

A. *Natives of Europe.*

§ i. *Ròbur. British Oaks.*

1. pedunculàta *Willd.* 849
The common British Oak.—Q. Ròbur Lin. Sp. Pl., Eng. Bot.; Q. R. *pedunculàtum* Mart. Fl. Rust.; Q. *fœ'mina* Roth Ger.; Q. *racemòsa* N. Du Ham.; Q. *cùm lóngo pedùnc.* Bauh. Pin.; Q. *Hémeris* Dalech. Hist.; *Quércus* Fuchs: Hist.; Q. *navàlis* Burnet: *White Oak*, *Chêne blanc* Secondat; *Chêne pédonculé, ou à Grappes*, *Chêne femelle*, *Gravelin*, Fr.; *Stiel Eiche*, *früh Eiche*, *Thal Eiche*, *Lohe Eiche*, *Wald Eiche*, Ger.; *Eschio*, *Quercia gentile*, Ital.; *Encina roble*, Span.
2 pubéscens *Lod. C.* 849
3 fastigiàta - - 849
Q. *fastigiàta* Lam.
Q. *pyramidàlis* Hort.
*Chêne des Pyrénées*, Fr.
4 péndula - - 849
Q. *péndula* Lodd. Cat.
*The Weeping Oak.*
5 heterophýlla - 851
Q. *salicifòlia* Hort.
Q. *laciniàta* Lodd. Cat.
Q. *tilicifòlia* Hort.
Q. *Fennéssi* Hort.
6 fòliis variegàtis - 851
7 purpùrea - - 851
Q. *purpùrea* Lodd. Cat.
*Other Varieties* - - 851
2. sessiliflòra *Sal.* - 851
Q. Ròbur Willd.; Q. R. *var. séssile* Mart. Fl. Rust.; Q. *séssilis* Ehrh. Arb.; Q. *platyphýllos*, *mas et fœm.* Dalech. Hist.; Q. *latifòlia mas*, &c., Bauh. Pin., Raii Syn.; Q. *regàlis* Burnet; ? Q. *austràlis* Cook, Q. *mannifera*, *the Manna Oak*, Lindl. Bot. Reg.; Q. *mongólica* Ibid. and Gard. Chron.: *the Red Oak*, *Chestnut Oak*, *Bay Oak*: *Chêne mâle*, Secondat, *Chêne roure* or *rouvre*, *Durelin*, Fr.; *Stein Eiche*, *gemeine Eiche*, *spät Eiche*, *Winter Eiche*, *dür Eiche*, *roth Eiche*, *Berg Eiche*, Ger.; *Quercia vera* and *Quercia commune*, Ital.; *Roble*, Span.
2 pubéscens - - 852
Q. *s. var. β* Smith Eng. Fl.
Q. *pubéscens* Willd. Sp. Pl.
Q. R. *lanuginósum* Lam.
*The Durmast*, Mart.
3 macrocárpa - - 852
Q. Ròbur *macrocárpum* Booth.
4 falkenbergénsis - 852
Q. *falkenbergénsis* Booth, Forbes Hort. Tour.
5 austràlis - - 852
Q. *austràlis* Link.
*Other Varieties* - - 852
3. pyrenàica *Willd.* 853
Q. Taúzin *Pers.*, Q. *nìgra* Thore Chlor., Q. Tòsa *Bosc*, Q. *stolonifera* Lapeyr., Q. *tomentòsa* Dec.: *Chêne noir*, Secondat; *Chêne-tauzin*, Fr.
4. E'sculus *L.* - 853
The Italian Oak.—Phàgus E'sculus, *mas et fœm.* Dalech. Hist. *Chêne grec*, Fr.
5. (*E.*) apennìna *L.* 854
Q. *conglomeràta* Pers.: *Chêne hivernal*, Fr.

§ ii. *Cérris. Mossy-cupped, or Turkey, Oaks.*

6. Cérris *L.* - - 854
Q. *crinìta α and β* Lam. Dict., Q. *Haliphlœ'os* Juss. in Hort. Par., Q. *burgundìaca*, &c., Bauh. Pin.; Q. *Cérris Plinii*, &c., *Lob. Ic.*, *Dod. Pempt.*, *Ger. Emac.*; Cérrus Dalech. Hist.: *the Turkey Oak*, *the Iron*, or *Wainscot*, *Oak*: *Chêne Cerris*, *Chêne chevelu*, *Chêne de Bourgogne*, Fr.; *Burgundische Eiche*, *Cerr-eiche*, Ger.; *Cerro Ghiande amare*, Ital.
*Varieties.*

* *Foliage deciduous.*

a. *Leaves pinnatifid or sinuated. Cups of the Acorns mossy.*

1 vulgàris - - 855
Q. Cérris *frondòsa* Mill. Dict.
Q. *crinìta var.* ε Lam.
Q. *Tournefórtii Willd.*
Q. *orientàlis latifòlia*, &c., Tourn. Cor.
Q. Cérris Oliv. Voy.
Q. *Haliphlœ'os* Bosc.
2 péndula *Neill* - 856
3 laciniàta - - 856
4 variegàta *Lod. C.* 856

b. *Leaves dentate. Cups of the Acorns bristly.*

5 austrìaca - - 856
Q. *austrìaca* Willd.
Q. Cérris Host Syn., *α and β.*
Q. *crinìta γ* Cérris Lin.
Q. *cályce hispido*, &c., Bau.
6 càna màjor - 857
Q. *càna màjor* Lod. Cat.
7 càna mìnor - 857
Q. *càna minor* Lod. Cat.
8 Rágnal - - 857
Q. *Rágnal* Lod. Cat.

** *Foliage sub-evergreen. Leaves dentate. Acorns with bristly Cups.*

9 fulhaménsis - 858
Q. C. *dentàta* Wats.
Q. C. *hýbrida var. dentàta* Swt.
10 latifòlia *Hort.* - 859
11 Lucombeàna - 859
Q. *Lucombeàna Swt.*
Q. *exoniénsis* Lod. Cat.
*The Lucombe Oak*, *the Evergreen Turkey Oak*, *the Devonshire Oak*, *the Exeter Oak.*

*** *Foliage evergreen, or very nearly so. Leaves varying from dentate to sinuate. Cups of the Acorns bristly.*

12 L. crispa - 859
Q. *L. crispa* Hort.
*New Lucombe Oak.*

13 L. suberòsa - 859
Q. *L. suberòsa* Hort.

14 L. incìsa - 859
Q. *L. incìsa* Hort.

15 L. dentàta - 859
Q. *L. dentàta* Hort.

16 heterophýlla - 859
Q. *L. heterophýlla* Hort.

7. *Æ'gilops L.* - 860
The Valonia Oak.—Q. *orientàlis, &c.*, Tourn. Cor.; *Æ'gilops sive Cérrus mas* C. Bauhin, Secondat; Velàni *Tourn, Voy.*; *Glàns Cérri* Dalech. Hist.: *the great prickly-cupped Oak*: *Chêne Velani*, Fr.; *Chêne Velanède* Bosc; *Knopper Eiche*, Ger.; *Vallonea*, Ital.

2 péndula *Hort.* - 860

3 latifòlia *Hort.* - 860

B. *Natives of North America.*

§ iii. *Álbæ. White American Oaks.*

8. álba *L.* - - 862
Q. *álba virginiàna* Park. Theat. Bot., Q. *a. pinnatifida* Walt. Carol., Q. *palústris* Marsh: *Chêne blanc de l'Amérique*, Fr.; *weisse Eiche*, Ger.

1 pinnatífida *Mx.* 862
Q. *álba* Ban. Cat. Stirp.
Q. *virginiàna* Catesb. Car.
Q. *a. palústris* Marsh.

2 repánda *Michx.* 862

9. (a.) olivæfórmis 864
*The mossy-cupped Oak*, Amer.

10. macrocárpa *W.* 864
*The over-cup white Oak, Bur Oak*, Amer.; *Chêne à gros Glans, Chêne frisé*, Fr.; *grossfruchtige Eiche*, Ger.

11. obtusíloba *Mx.* 865
The Post Oak.—Q. *stellàta* Willd. Sp. Pl.: *Iron Oak, Box white Oak, American Turkey Oak, Upland white Oak*, Amer.

12. lyràta *Walt.* - 865
*The Swamp Post Oak, Water white Oak*, Amer.

§ iv. *Prìnus. Chestnut Oaks.*

13. *Prìnus L.* - 866
The Chestnut-leaved Oak.

1 palústris *Mx.* - 866
Q. P. *palústris* Mx.
Q. *Prìnus* Lin. Sp. Pl.
Q. *castaneæfòliis*, &c., Pk.
*The Swamp Chestnut Oak, the Chestnut white Oak*, Amer.; *the white Oak*, near Philadelphia.

2 monticola *Mx.* - 866
Q. P. *monticòla* Mich. fil.
Q. *montàna* Willd. Sp. Pl.
Q. *Prìnus* Smith in Abb.
*The Rock Chestnut Oak.*

3 acuminàta *Mx.* - 867
Q. P. *acuminàta* Mx. fil.
Q. *Castànea* Willd. Sp. Pl.
*The yellow Oak.*

4 pùmila *Mx.* - 867
Q. P. Chinquapin *Mx.*
Q. Chinquapin *Pursh Fl.*
Q. *prinòides* Willd. Sp. Pl.
*The Chinquapin*, or *Dwarf Chestnut Oak.*

5 tomentòsa *Mx.* - 868
Q. P. *discolor* Mx.
Q. *bicolor* Willd. Sp. Pl.
Q. *Michaùxii Nutt.*
*The Swamp white Oak.*

§ v. *Rùbræ. Red American Oaks.*

14. rùbra *L.* - - 868
The Champion Oak.—Q. *E'sculi divisùra*, &c., Pluk. Phyt.
*Varieties.* Q. rùbra latifòlia and Q. rùbra montàna are mentioned by Aiton in the 2d ed. of Hort. Kew.

15. coccínea *Willd.* 869
Q. *rùbra β* Ait.

16. ambígua *Willd.* 870
The Grey Oak.—Q. *boreàlis* Michx. N. Amer. Syl.

17. falcàta *Michx.* 870
The Spanish Oak.—Q. *discolor* Ait. Hort. Kew. ed. 1.; Q. *elongàta* Willd. Sp. Pl.; Q. *lyràta* Lodd. Cat. 1836; Q. *cuneàta* Wang.; Q. *triloba* Willd., Michx. Quer.: *the downy-leaved Oak.*

18. tinctòria *Willd.* - 871
The Quercitron.—Q. *virginiàna, &c.*, Pluk. Phyt.; Q. *discolor* Willd. Arb.: *the black Oak*, Amer.; *Chêne des Teinturiers*, Fr.

1 angulòsa *Michx.* 871
Q. *americàna* Pluk. Alm.
Q. *velutina* Lam. Dict.
Q. *tinctòria* Bart. Trav.
*The Champlain Oak.*

2 sinuòsa *Michx.* - 872

19. palústris *Willd.* - 872
The Pin Oak.—Q. *montàna* Lodd. Cat. 1836, Q *Banisteri Lodd. Cat.* 1836.

20. Catesbæ'i Willd. 873
The Barren Scrub Oak.—Q. *rùbra β* Abb. & Smith Ins., Q. *E'sculi divisùra, &c.*, Cat. Car.

§ vi. *Nìgræ. Black American Oaks.*

21. nìgra *L.* - - 874
The Black Jack Oak.—Q. *marylándica, &c.*, Raii; Q. *ferruginea* Michx. N. Amer. Syl.; Q. *aquática* Lodd. Cat. 1836: *Barren Oak*, Amer.

22. aquática *Soland.* 875
Q. *fòliis cuneifórmibus, &c.*, Gron. Virg.; Q. *fòlio non serràto, &c.*, Cat. Carol.; Q. *nigra* Willd. Sp. Pl., Q. *uliginòsa* Waugh. Amer.

2 nàna - - - 875
Q. *aquática* Sm. & Abb.
Q. *a. elongàta* Ait. H. K.
Q. *dentàta* Bart. Trav.
Q. *nàna* Willd. Sp. Pl.
*The Dwarf jagged Oak.*

3 marítima *Michx.* 875
Q. *hemisphæ'rica* Willd.

*Other Varieties* - - 875

23. (a.) ilicifòlia *W.* 876
The Bear Oak.—Q. *Banisteri Michx.*, ? Q. *aquática* Abb. & Sm. Ins.: *Black Scrub Oak, Dwarf red Oak*, Amer.

§ vii. *Phéllos. Willow Oaks.*

24. *Phéllos L.* - 876
Q. *virginiàna, &c.*, Pluk. Alm.; Q. *Ilex marylándica* Raii Hist. Pl.

1 sylváticus *Michx.* 877

2 latifòlius *Lodd. C.* 877

3 hùmilis *Pursh* - 877

4 seríceus - - 877
Q. *Phéllos* Sm. & Abb. Ins.
Q. P. *pùmilus* Michx.
Q. *humilior sálicis fòlio brevióre* Cat. Car.
Q. *sericea* Willd. Sp. Pl.
Q. *pùmila* Mx. N. Am. Syl.
*The Highland Willow Oak.*
*The running Oak.*

5 cinèreus - - 877
Q. P. *γ.* Lin. Sp. Pl.
Q. P. *β cinèreus* Ait. H. K.
Q. *hùmilis* Walt. Carol.
Q. *cinèrea* Willd. Sp. Pl.
*The upland Willow Oak.*

6 marítimus *Michx.* 878
Q. *maritima* Willd. Sp. Pl.

25. (*P.*) laurifòlia *W.* 878
*The Laurel Oak, Swamp Willow Oak.*

2 hýbrida *Mx. Quer.* 878
Q. l. 2. *obtusàta* Ait. H. K.

26. imbricàta *Willd.* 879
Q. *latifòlia* Hort.: *Laurel Oak, Filed-cup Oak, Jack Oak, Black Jack Oak*, Amer.; *Chêne à Lattes*, Fr.

27. heterophýlla *M.* 879
*Bartram's Oak.*

*Other Species of Phéllos.* — Q. agrifòlia *Willd.* (? Q. *coccifera*) - - - - 879

B. *Leaves evergreen.*

A. *Natives of Europe.*

§ viii. *Ilex. Holm, or Holly, Oaks.*

28. *Ilex L.* - - 880
The common evergreen Oak.—*Ilex arbórea* Bauh. Hist.: *l'Yeuse*, or *Chêne vert*, Fr.; *Stein Eiche*, Ger.; *Elice*, Ital.; *Encina*, Span.

1 integrifòlia *Lod. C.* 880

2 serratifòlia *Lod. C.* 880

3 *fagifòlia Lodd. C.* 880
*Phéllodrys* Matth. Valgr. *Ilex No.* 3. Du Ham. Arb.
4 crispa *Lod. Cat.* 880
5 latifòlia *Lod. Cat.* 880
Q. I. *oblónga* Hort.
6 longifòlia *Lod. C.* 880
Q. I. *salicifòlia* Hort.
7 variegàta *Hort.* - 880

29. (*I.*) *Ballòta* Des. 882
? *Ilex màjor* Clus. Hist.: *Chêne à Glands doux, Chêne Ballote*, Fr.

30. (*I. B.*) gramúntia 882
? *Ilex fòliis rotundióribus, &c.*, Magn. Monsp.: *Chêne de Grammont*, Fr.; *Wellenblättrige Eiche*, Ger.; *Encina dulce*, and *Gouetta*, Span.
2 Coókii - - 883
Q. *Coóki* *Arb. Brit.* 1st ed.

31. coccífera *L.* - 883
The Kermes Oak.—*Ilex coccifera* Cam. Epit., I. *aculeàta cocciglandifera* Garid. Aix., I. *coccigera* Ger. Emac.: *Chêne aux Kermes*, Fr.; *Kermes Eiche*, Ger.; *Querce del Kermes*, Ital.

32. pseùdo-coccífera 883
*Chêne à faux Kermes*, Fr.; *Stechernde Eiche*, Ger.

33. Sùber *L.* - - 884
*Sùber* Cam. Epit., S. *Prìnus* Matth. Valgr., S. *latifòlium, &c.*, Du Ham. Arb.: *Chêne Liège*, Fr.; *Kork Eiche*, Ger.; *Sovero*, Ital.; *Alcornoque*, Sp.
2 latifòlium - - 884
*Sùber latifòlium, &c.*, Bau.
3 angustifòlium - 884
*Sùb. angustifòlium* Bauh.
4 dentàtum - - 884
Q. *Pscùdo-Sùber* Hort.

34. Pseùdo-Sùber *D.* 885
*Chêne faux Liège, Chêne de Gibralter*, Fr.; *Unächte Kork-Eiche*, Ger.: Q. *Túrneri Bosc*, from a leaf received by him from Kew, not of Willd.
2 Fontanèsii - - 885
Q. *Fontanèsii* Guss.

35. Túrneri Willd. 885
Q. *hýbrida* Hort.: *Chêne de Turner*, Fr.; *Turnersche Eiche*, Ger.

36. hýbrida nàna - 886
Q. *hýbrida* Lodd. Cat. 1836; Q. "*a hybrid between* Q. *pedunculàta and* Q. *Ilex* in Hort. Soc. Gard."; Q. *hùmilis* Hort., Q. *nàna* Hort.

B. *Natives of North America.*

§ ix. *Viréntes. Live Oaks.*

37. vìrens *Ait.* - 886
The Live Oak.—Q. *Phéllos* β Lin. Sp. Pl., Q. *sempervìrens* Banister, Q. *hemisphæ'rica* Br. Bot. Gard.

38. myrtifòlia *Willd.* 887

C. *Natives of Nepal.*

§ x. *Lanùtæ. Woolly or downy-leaved Oaks.*

39. lanàta *Smith* - 888
Q. *lanuginòsa* D. Don Prod., Fl. Nep.; ? Q. Bánja *Ham. MSS.*, ? Q. *oblongàta* D. Don, l. c.; ? Q. *incàna* Royle Illust.

40. annulàta *Smith* 888
Q. Phullàta *Ham. MSS.*, *D. Don Prod. Fl. Nep.*; ? Q. *Kamroòpii D. Don, l. c.*; ? Q. *glaúca* Thunb., ? Q. *acuminàta* Hort.

App. i. *European Kinds of Oaks not yet introduced.*

Q. *fagínea Lam.* - - 889
Q. *ægilopifòlia* Willd.
Q. *ægilopifòlia Pers. Syn.* 889
Q. *hispánica* β Lam.
Q. *Bróssa* Bosc - - 889
*Chêne Brosse* at Nantes; *Chêne nain*, Bonami.
Q. viminàlis *Bosc* - - 889
*Chêne Suule, Chêne Osier, Chêne de Hai*, Fr.
Q. áspera *Bosc* - - 889
*Chêne âpre*, Fr.
Chêne Lézermien, *Bosc* - 889
Chêne Castillan, *Bosc* - - 889
*Other Species.*—Q. lusitánica *Lam.*, Q. prásina *Pers.*, Q. calycìna *Poir.*, Q. expánsa *Poir.*, Q. rotundifòlia *Lam.*, and Q. hùmilis *Lam.* - 889

App. ii. *Oaks of Africa, Asia Minor, and Persia, only partially introduced.*

Q. obtécta *Poir. Dict.* - 890
Q. infectòria *Oliv. Voy.* - 890
Q. *cariénsis* Willd.: *Chêne à Galles*, Fr.; *Färber Eiche*, Ger.
Q. Libàni *Oliv.*, Q. rígida *Willd.*, Q. ibérica *Stev.*, Q. castaneifòlia *C. A. Meyer*, and Q. mongólica *Fisch.*, are described in onr 1st edit. - 890
Q. mannífera *Lindl. Bot. R.* 890
Q. règia *Lindl. Bot. Reg.* 891
Q. Bránti *Lindl.* Bot. Reg. 891

App. iii. *Himalayan Oaks only partially introduced.*

Q. spicàta *Smith in Rees's C.* 891
Q. *squamata* Rox. Hort. Beng.
Q. A'rcula *Ham. MSS.*
Q. obtusifòlia *D. Don*, Q. grandifòlia *D. Don*, and Q. velutìna *Lindl.*, are described in our 1st ed. - - 892
Q. lamellòsa *Smith* - - 892
Q. *imbricata* Ham. MSS., D. Don Prod. Fl. Nep.
Q. semecarpifòlia *Smith.* 893

App. iv. *Oaks of Japan, Cochin-China, & China, most of which have not yet been introduced.*

Q. glàbra *Thunb.* - - 893
Q. concéntrica *Lour.*, Q. acùta *Thunb.*, Q. serràta *Thunb.*, Q. glaúca *Thunb.*, Q. cuspidàta *Thunb.*, Q. dentàta *Thunb.*, Q. obovàta *Bunge*, and Q. chinénsis *Bunge*, are described in our 1st ed. - 893

App. v. *Oaks of Java, Sumatra, and the Molucca Isles, not yet introduced.*

Q. sundàica *Blume Fl. Jav.* 893
*The Sunda Oak.*
Q. pruinòsa *Blume Fl. Jav.* 894
*The frosty Oak.*
Q. angustàta *Blume Fl. Jav.* 894
Q. pállida *Blume Fl. Jav.* - 895
Q. costàta *Blume Fl. Jav.* 895
Q. rotundàta *Blume Fl. Jav.* 895
Q. élegans *Blume Fl. Jav.* 896
Q. placentària *Blume Fl. Jav.* 896
Q. glabérrima *Blume Fl. Jav.* 896
Q. platycárpa *Blume Fl. Jav.* 896
Q. daphnöidea *Blume Fl. Jav.* 897
Q. racemòsa *Hook.* in *Comp. B. Mag.*, Q. gemellifòra *Blume Fl. Jav.*, Q. indùta *Blume Fl. Jav.*, Q. urceolàris *Hook.*, and Q. Pseùdomolúcca *Blume Fl. Jav.*, are described in our 1st ed. - 898
Q. molúcca *Blume Fl. Jav.* 898
Q. turbinàta *Blume Fl. Jav.* 898
Q. lineàta *Blume Fl. Jav.* - 898

App. vi. *Mexican Oaks only partially introduced.*

Q. xalapénsis *Humb. & Bon.* 898
Q. glaucéscens *Humb. & Bon.* 899
Q. obtusàta *Humb. & Bon.* 899
Q. panduràta *Humb. & Bon.* 899
Q. repánda *Humb. & Bon.* 900
Q. *la*úrina *Humb. & Bonpl.* 900
Q. sideróxyla *Humb. & Bon.* 900
Q. mexicàna *Humb. & Bon.* 901
Q. crássipes *Humb. & Bon.* 901
Q. crássipes angustifòlia *H.* 901
Q. lanceolàta *Humb. & Bon.* 901
Q. reticulàta *Humb. & Bon.* 902
Q. chrysophýlla *Hum. & B.* 902
Q. pulchélla *Humb. & Bon.* 902
Q. spicàta *Humb. & Bon.* 902
Q. stipulàris *Humb. & Bon.* 902
Q. crassifòlia *Humb. & Bon.* 903
Q. depréssa *Humb. & Bon.* 903
Q. ambígua *Humb. & Bon.* 903
Q. confertifòlia *Hum. & Bon.* 904
Q. trìdens *Humb. & Bon.* 904
Q. acutifòlia *Willd., H. & B.* 904
Q. elliptica *Willd.*, Q. mucronàta *Willd.*, Q. tomentòsa *Willd.*, Q. circinàta *Willd.*, Q. spléndens *Willd.*, Q. rugòsa *Willd.*, Q. macrophýlla *Willd.*, Q. diversifòlia *Willd.*, Q. cándicans *Willd.*, Q. microphýlla *Willd.*, Q. lobàta *Willd.*, Q. magnoliæfòlia Willd., Q. lùtea *Willd.*, and Q. salicifòlia *Willd.*, are described in our 1st ed. - 904
Q. lancifòlia *Cham. et Schlec.* 904
Q. petiolàris *Benth.* - - 904
Q. dysophýlla *Benth. Plant. Hartweg.*, Q. *A'lamo* Ibid., Q. barbinèrvis *Ibid.*, Q. glabréscens *Ibid.*, Q. Hartwègi Ibid., and some others, have been discovered by Hartweg, who has sent home specimens of all, and acorns of some, to the Hort. Soc. - - 904

II. *FA'GUS L.* - - 905
The Beech.—*Fagus* of the

Romans according to Bauhin; *Oxua* of the Greeks; *Castànea* Tourn.: *Hêtre*, Fr.; *Buche*, Ger.; *Beuke*, Dutch; *Bog*, Dan.; *Bok*, Swed.: *Buk*, Russ. and Pol.; *Faggio*, Ital.; *Haya*, Span.; *Faya*, Port.

A. *Cupule muricate, capsuliform. Ovaries included. Young leaves plicate.*

a. *Species in Cultivation in British Gardens.*

1. sylvática *L.* - 905
*Castànea* Fàgus Scop. Carn., Fàgus Bauh. Pin., F. *sylvéstris* Mich. N. Amer., *Oxya*, Greek, *Fagus*, Lat.: *Hêtre commun*, Fr.; *gemeine Buche*, Ger.; *Roodbeuke*, Dutch.
2 purpùrea *Ait.* - 905
F. *s.* 2. *àtro-rùbens* Du R. *Hêtre noir*, Fr.
3 cùprea *Lodd. Cat.* 905
4 fòliis variegàtis - 905
5 heterophýlla - 906
F. *s. laciniàta* Lodd. Cat.
F. *s. asplenifòlia* L. Cat.
F. *s. incisa* Hort.
F. *s. salicifòlia* Hort.
*Hêtre á Feuilles de Saule*, Fr.
6 cristàta *Lodd. Cat.* 906
F. *s. crispa* Hort.
*Hêtre Crête de Coq*, Fr.
7 péndula *Lod. Cat.* 906
*Hêtre Parasol*, Fr.
8 americàna - 907
F. *sylvêstris* Michx.
*White Beech*, Amer.

2. ferrugínea *Ait.* - 909
F. *americàna latifòlia* Du Roi Harbk.: *red Beech*, Amer.
2 caroliniàna - - 909
F. *caroliniàna* Lod. Cat.
3 latifòlia - - 909
F. *latifòlia* of Lee's Nurs.

b. *Species not yet introduced.*

3. oblíqua *Mirb.* - 910

B. *Cupule involucriform; Segments narrow, laciniate. Ovaries laterally inserted.*

a. *Species introduced into Britain.*

4. *b*etulòides *Mirb.* 910
The evergreen Beech. — *Bétula antárctica* Forst. in Com. Goett., Willd. Sp. Pl.

5. antárctica *Forst.* 910

b. *Species not yet introduced into British Gardens.*

6. Dombèy*i* Mirb. - 911
The Myrtle-leaved Beech.

7. dùbia *Mirb.* - 911

III. CASTA'NEA *T.* - 911
The Chestnut. — Fàgus Lin. and others: *Châtaignier*, Fr.; *Kastanie*, Ger.; *Castagna*, Ital.; *Castano*, Span.; *Castanheiro*, Port.; *Castanietræ*, Swed. and Dan.; *Keschton*, Russ.

1. vésca *Gærtn.* - 912
The Sweet, or Spanish, Chestnut. — Fàgus *Castànea* Lin. Hort. Cliff., *Castànea sativa* Mill. Dict., C. *vulgàris* Lam. Encyc. Eng. Bot.
*Varieties*

A. *Botanical Varieties.*

2 asplenifòlia *Lodd.* 912
C. *heterophýlla* Hort.
C. *laciniàta* Hort.
C. *salicifòlia* Hort.
3 cochleàta *Lod. Cat.* 912
4 glàbra *Lodd. Cat.* 912
C. *v. fòliis lùcidis* Hort.
5 glaúca *Hort.* - 912
C. *glaúca* Hort.
6 variegàta *Hort.* - 912
C. *v. fòliis aúreis* Lodd.
7 americàna - - 912
C. *vésca* Michx.

B. *Fruit-bearing Vars.* 912

2. pùmila *Willd.* - 914
The Chincapin. — *Fàgus pùmila* Lin. Sp. Pl., *Castànea pùmila virginiàna*, &c., Pluk. Alm.: *Chataignerr Chincapin*, Fr.; *zwerch Kastanie*, or *Castanje*, Ger.

*Species of* Castànea *not yet introduced into European Gardens.*

*C.* índica *Rox. Hort. Beng.* 914
*C.* Roxbúrghii Lindl. - 915
*Quércus castanicárpa* Rox. Hort. Beng., Spreng. Syst. Veg.
*C.* sphærocárpa *Lindl.* - 915
*Quércus armàta* Rox. MSS.
*C. tribulòides Lindl.* - - 915
*Quércus tribulòides* Smith in Rees's Cycl., D. Don in Prod. Nep., Wall. in Litt.; Q. Catúngea *Ham. MSS.*; Q. *fèrox* Rox. Hort. Beng.
*C.* martabánica *Wall. Pl. As.* 915
*C. Tungúrrut* Blume Bjdr. 915
*Tungurrut*, or *Tungerreh*, of the Natives.
*C.* argéntea *Blume Fl. Jav.* 915
*C.* javánica *Blume Fl. Jav.* 915
2 montána - - - 915
C. *montàna* Blume Bjdr.
3 fucéscens - - - 916
*C.* inérmis *Lindl. in Wall.* - 916
*C.* chinénsis *Spreng.* - - 916

IV. CA'RPINUS *L.* - 916
The Hornbeam. — *Carne*, *Charme*, Fr.; *Haynbuche*, or *Hainbuche*, Ger.; *Carpino*, Ital.

1. *B*étulus *L.* - - 917
*Cárpinus* Matth. Valgr., *O'strya* Bauh. Pin., *O'rnus* Trag. Hist., Fàgus Bauh. Hist., *Bétulus* Lob. Ic.: *Carne*, *Charme*, Fr.; *gemeine Haynbuche*, Ger.; *Carpino blanco*, Ital.: *Hornbeam*, *Yoke Elm*, and in some places *Wych Hazel.*
2 incìsa *Lodd. Cat.* 917
C. B. *quercifòlia* Desf.
C. B. *hcterophýlla* Hort.
3 variegàta *Lod. Cat.* 917

2. (*B.*) americàna - 918
C. *virginiàna* Michx. Arb.

3. (*B.*) orientàlis *L.* 918
*Species or Varieties of* Cárpinus *not yet introduced into European Gardens.*
*C. B. Carpinízza* Hort. - 919
*C.* vimínea *Lindl., Wall.* - 919
C. fagínea *Lindl., Wall.* - 919

V. *O'*STRYA *Willd.* 919

1. vulgàris *Willd.* - 920
*Cárpinus O'strya* Hort. Cliff., *O'strya carpinifòlia* Scop. Carn., *O'strya* Bauh. Pin., O. *itálica*, &c., Michx. Gen.: *Carpino nero*, Ital.

2. (? v.) virgínica *W.* 920
*Cárpinus virginiàna* Abb. Ins., *Cárpinus O'strya virginiàna* Michx. Fl. Bor. Amer., C. *O'strya* Mich. N. Amer. Syl., not the fig., which is *O.* vulgàris: *Iron Wood*, *Lever Wood*, Amer.; *Bois dur*, Illinois.

VI. *Co'*RYLUS *L.* - 921
The Hazel. — *Coudrier*, Fr.; *Haselnuss*, Ger.; *Nocciolo*, Ital.

1. *A*vellàna *L.* - 921
*Coudrier Noisetier*, Fr.; *Haselsrauch*, *Nussbaum*, Ger.; *Avellano*, *Noccioto*, Ital.; *Avellano*, Span.

*Varieties.*

A. *Botanical Varieties.*

1 sylvéstris *Ait.* - 922
C. *Avellàna* Svensk.,
C. *sylvéstris* Bauh. Pin.
2 pùmila - - 922
C. *pùmila* Lodd. Cat.
3 heterophýlla - 922
C. *heterophýlla* Lodd. Cat.
C. *laciniàta* Hort.
C. *urticifòlia* Hort.
4 purpùrea - - 922
C. *purpùrea* Lodd. Cat.
C. *àtro- purpùrea* Hort.

B. *Varieties cultivated for their Fruit.*

5 tubulòsa - - 922
C. *tubulòsa* Willd. Abbild.
C. *mázima* Mill. Dict.
C. *sativa* Bauh.
C. *s. rùbra* Ait.
*Red Filbert*, Hort. Soc. Cat.
*Langbartnuss*, or *Lambertsnuss*, Ger.
*Noisetier franc à Fruit rouge*, Poit. et Turp.
6 tubulòsa álba - 922
C. *sativa álba* Ait.
C. A. *álba* Lodd. Cat.
*White Filbert*, Hort. S. Cat.
*Weisse Langbartnuss*, Ger.
7 crispa *Enc. of Pl.* 923
*Frizzled Filbert*, P. M.
8 tènuis *Lodd. Cat.* 923
*Thin-shelled*, or *Cosford*, *Nut*, Pom. Mag., H. S.
9 barcelonénsis - - 923
C. *sativa grándis* Bauh.
C. A. *grandis* Lodd. Cat.
*The Cob Nut*, *the Barcelona Nut*, *the Downton large Nut*, Hort. S. C.

2. Colúrna *L.* - - 923
C. *byzantìna* Herm. Lugdb., *Avellàna peregrina humilis*

Bauh. Pin., A. *pùmila byzantìna* Clus. Hist., C. *arbòrea* Hort.: *le Noisetier de Bizance*, Fr.; *Byzantinische Haselnuss*, Ger.
2 intermèdia - - 923
C. *intermèdia* Lodd. Cat.
3 arboréscens *Fisch.* 924

3. rostràta *Ait.* - 925
The Cuckoold Hazel.—C. *sylvéstris*, *&c.*, Gron. Virg.; C. *cornùta* Hort.

4. americàna *Michx.* 925
C. *americàna hùmilis* Wang. Amer.: *Dwarf Cuckold Nut, wild Filbert*, Amer.

*Other Species.* — C. fèrox *Wall. Pl. As. Rar.* - - 925

## *Garryàceæ.*

I. GA'RRYA Dougl. 926
1. ellíptica *Dougl.* - 926
2. laurifòlia *Hartw.* 926

*Other Species of Gárrya.*— G. Lindlèyi, G. macrophýlla, G. oblónga, and G. ovàta, are described in Bentham's Plantæ Hartwegianæ - - 927

## *Platanàceæ.*

I. PLA'TANUS *L.* - 927
The Plane Tree.—*Platane*, Fr.; *Platanus*, Ger.; *Platano*, Ital.

1. orientàlis *L.* - - 928
P*látanus orientàlis vèra* Park. Theatr., Du Ham. Arb.: *Platane de l'Orient*, Fr.; *Morgenlandischer Platanus*, Ger.; *Doolb*, Arabic; *Chinar*, Persian.
2 acerifòlia *Ait.* - 928
P. *o.* A'*ceris fòlio* Tour. C.
P. a*cerifòlia* Willd. Sp. Pl.
P. *intermèdia* Hort.
*Maple-leaved Plane Tree.*
3 hispánica - - 927
P. *hispánica* Lodd. Cat.
P. *macrophýlla* Cree.
4 cuneàta - - 929
P. *o. undulàta* Ait. H. K.
P. *cuneàta* Willd. Sp. Pl.

2. occidentàlis *L.* 931
P. *occidentàlis seu vírginiénsis* Park. Theatr., Du Ham. Arb.: *Button-wood, Water Beech, Sycamore, Cotton Tree*, Amer.; *Platane de Virginie*, Fr.

## *Balsamàceæ.*

I. LIQUIDA'MBAR *L.* 932
*Altíng*ia *Noronh.*: *Liquidambar*, Fr.; *Ambarbaum*, Ger.

1. Styracíflua *L.* - 932
*Liquidámbar árbor* Pluk. Alm., *Stýrax* A'*ceris fòlio* Raii Hist.: *Liquidambar résineux, Copalme de l'Amérique, Liquidambar Copal*, Fr.; *Fliessender Ambarbaum*, Ger.; *Storace liquida*, Ital.

2. imbérbe *Willd.* - 933
*L. orientàlis* Mill. Dic., ? P*látanus orientàlis* Pocock Itiner., L. *imbérbis* Smith in Rees's Cyc.

*Other Species.* — L. Altíng*ia* Blume Bjdr. (*Altíng*ia *excélsa* Noronha in Batav. Verhand., Pers. Syn., Spreng. Sys. Lambert's Genus *Pinus*; *Lignum papuánum* Rumph. Herbar. Amboyn.) - 933

## *Myricàceæ.*

I. MYRI'CA *L.* - 934
The Candleberry Myrtle.—*Galé*, Fr.; *Wachsstrauch*, Ger.; *Mirica*, Ital.

1. *Gàle* L. - - 934
Sweet Gale, Sweet Willow, or Dutch Willow.—Gàle *Raii Syn.*, E*læágnus* Card. Hist., M*ýrtus brabántica* Ger. Emac., R*hús* m*yrtifòlia bélgica* Bauh. Pin., R. *sylvéstris áltera* Dalech. Hist., R. *sylvéstris* Park. Theat., M*yrìca palústris* Lam.: *Galé, Pimento royal*, Fr., *gemeine Wachsstrauch*, Ger.

2. cerífera *L.* - 935
The American Candleberry Myrtle.— M. *cerífera angustifòlia* Ait. Hort. Kew.; M*ýrtus brabántica*, *&c.*, Pluk. Alm.: *Cérier de la Louisiane*, Fr.; *Albero della cera*, Ital.
2 latifòlia *Ait.* - - 935
M. *c. mèdia* Michx.
M. *carolinénsis* Willd.,
M. *pennsylvánica* Lam.
M. *c. sempervírens* Hort.
M*ýrtus brabántica* Cates. Car.
*Cérier de Pennsylvanie*, Fr.
*Carolinischer Wachsstrauch*, Ger.

*Other Species.*— M. spathulàta *Mirb. Mem. Mus.* - - 936

II. COMPTO'NIA Sol. 936
*Liquidámbar* Lin. Sp., M*yrìca* Lin. Hort. Cliff., Gàle *Petiv. Mus.*: *Comptone*, Fr.; *Comptonie*, Ger.

1. asplenifòlia *Solan.* 936
*Liquidámbar* asplenifòlium Lin Sp., *L. peregrìnum* Lin. Syst., *Myrica* Linn. Hort. Cliff., Gàle *mariàna* Petiv. Mus., M*ýrtus brabánticæ aff'ínis* Pluk. Phyt.: *the sweet Fern Bush*, Amer.

## Gnetàceæ.

I. E'PHEDRA *L.* - 937

1. distàchya *L.* - 937
The Great shrubby Horsetail, *or Sea Grape.* — E'*phedra vulgàris* Rich. Mém. Conif., P*olýgonum marinum* Tabern., P. l*amifòlium*, *&c.*, Bauh. Pin.; E'*phedra maritima májor* Trn. Inst.: *Raisin de Mer, Ephèdre multiflore*, Fr.; *Zweyahriger Ross Schwanz*, Ger.

2. monostàchya *L.* 938
The Small Shrubby Horsetail. — E. *polygonòides* Pall. Ross.: *Ephedre mineure, Ephedre de Sibérie*, Fr.

## *Taxàceæ.*

1. TA'XUS *L.* - 939
The Yew

1. baccàta *L.* - - 939
T*áxus* No. 1663., Hall. Hist.: *If*, Fr.; *Ifenbaum, Ihenbaum*, or *Eihenbaum*, Ger.; *Taxo*, Ital.; *Texo*, Span.
2 fastigiàta - - 939
T. *fastigiàta* Lindl.
T. *hibérnica* Hook., Lodd.
*The Florence Yew.*
*The Irish Yew.*
3 procúmbens - 940
T. *procúmbens* Lodd. Cat.
4 erécta - - 940
5 sparsifòlia *Hort.* 940
6 fòliis varieg. *Lod.* 940
7 frúctu lùteo - 940

2. (b.) canadénsis *W.* 942
The North American Yew.—T. *b. minor* Michx. Bor. Amer.

3. Harringtòn*ia* Kn. 942
? T*áxus macrophýlla* Thunb., ?*Podocárpus macrophýllus* Sw., Lamb. 2d ed., Arb. Brit. 1st ed.

*Other Species of Táxus.* — T. Mackàya Pin. Wob., T. *Inukàja* Knight's Cat., T. globòsa *Schlecht.* - - 943

II. TORRE'YA Arn. 943
T*áxus sp.* Nutt.

1. taxifòlia *Arn.* - 944
T*áxus montàna* Nutt., not of Willd.: *Stinking Cedar*, Florida.

III. SALISBU'RIA S. 944
*Ginkgo* of Kæmpfer, Linnæus, and others.

1. adiantifòlia *Smith* 945
The Ginkgo Tree.— *Ginkgo, Gin-an*, or *Itsjo*, Kæmpf. Am.; Gínkgo *biloba* Lin. Mant.: *Noyer du Japon, Arbre aux quarante E'cus*, Fr.; *Albero adianto*, Ital.

## *Coníferæ*, or *Pinàceæ.*

Tribe I. *ABIE'TINÆ.*

I. PI'NUS *L.* - 950
The Pine.—*Le Pin*, Fr.; *Fichte, Pynbaum*, or *Kiefer*, Ger.; *Pynboom*, Dutch; *Pino*, Ital. and Span.; *Pinu*, Anglo-Sax.; *Pinnua*, Welsh; *Peigne*, Erse.

§ i. *Bìnæ. Leaves generally 2 in a sheath.*

A. *Natives of Europe.*

1. sylvéstris *L.* - 951
The Scotch Pine, or Scotch Fir.—P. *ràbra* Mill. Dict., P. *sylvéstris commùnis* Ait. Hort Kew., ? P. *Escarèna Risso*:

*Pin sauvage, Pin d'Ecosse*, Fr.; *gemeine Föhre, gemeine Fichte, Kiefer, Tanne*, and 55 other names, which are given in *Hayne Abbild.*, Ger.; *Pynboom*, Dutch; *Pino sylvatico*, Ital.; *Pino sylvestre*, Span.; *Fyrre*, Dan. and Swed.; *Sosna*, Pol., Boh., and Russ.

*Varieties.*

a. *Timber Trees.*

1 vulgàris - - 952
2 horizontàlis - 952
P. *horizontàlis* Don of For. P. *syl. var. montàna* Sang. *The Speyside Pine*, Grig. *The red-wooded Scotch Pine*, Sang. ? P. *rùbra* Mill. Dict.
3 uncinàta - - 952
*Mar Forest Wild Pine* H.S.
4 haguenénsis - 953
*Pin de Haguenau*, Fr.
5 rigénsis - - 953
*Pin de Riga*, Desf. Hist. *Pin de Russie, Pin de Mâture*, Fr.
*Other Timber Tree Vars.* 953
*Varieties curious or ornamental.*
6 genevénsis - - 953
*Pin de Tartare*, Fr.
7 monophýlla *Hodg.* 953
8 scariòsa - - 953
P. *scariòsa* Lodd. Cat. ? P. *squamòsa* Bosc Nouv.
9 intermèdia - 953
10 altàica *Ledebour* 953
11 tortuòsa *Don of F.* 954

2. (s.) pumílio *Hæn.* 955
The Mountain Pine. — P. *sylvéstris montàna* γ Ait. Hort. Kew.; P. *s. hùmilis* γ Neal; P. *hùmilis, &c.*, Tourn. Inst., Link Abhand.: *Pin nain*, French; *Krumholz*, Ger.
2 rubræfòlia - - 955
3 Fischerì Booth - 955
4 *Mùghus* - - 955
P. *s.* Mùgho *Matt. Cam.* P. *montàna* Baum. Cat. P. Mùgho *Jacq., Poir.*
5 *M.* nàna - - 956
*The Knee Pine of the Styrian Alps.*
*Other Varieties* - - 956

3 Larício *Poir.* - 956
The Corsican Pine. — P. *sylvéstris* ε *maritima* Ait. Hort. Kew., P. *maritima* ed. 2.: *Pinastro, Pino chiappino*, Ital.
1 corsicàna - - 957
*Laricio de l'Ile de Corse*, Delamarre.
2 subvíridis *N. Du H.* 957
3 caramánica - 957
P. *caramánica* Bosc. P. *caramaniénsis* Bon Jard. *Laricio de Caramanie, ou de l'Asia Mineure*, Delamarre. ? P. *romàna* Lond. H. S. Gard.
4 calábrica - - 957
*Laricio de Mont Sila en Calabre*, Delamarre.
5 austrìaca - - 958
P. *austrìaca* Höss. *Laricio d'Autriche, ou de la Hongrie*, Delamarre.
*Other Varieties* - - 958

4. (L.) austrìaca *Höss* 958
The black Pine. — P. *nigricans* Hort., P. *nigréscens* Hort.: *schwartz Föhre*, Ger.

5. (L.) Pallasiàna L. 959
The Tartarian Pine. — P. *taúrica* Hort.; P. *tatárica* in the Hammersmith Nursery in 1797, P. *maritima* Pall. Ind. Taur.: *Tzaam* in the Tartar language.
*Varieties.*
Cones straight and short - - 960
Cones long and crooked - 960

6. (L.) pyrenàica *L.* 961
P. *hispánica* Cook's Sketches in Spain, P. *inaster hispánica* Roxas di San Clemente; P. *pcnicéllus* Lap. Hist. des Pl. des Pyrénées; P. *halepénsis màjor* Ann. d'Hort. de Paris: *Pin Nazaron, Pin pinceau*, Fr.

7. Pináster *Ait.* - 961
The Cluster Pine. — P. *sylvéstris* γ Lin. Syst. Reich., P. *maritima áltera* Du Ham. Arb., P. *marítima* N. Du Ham.; P. *sýrtica* Thore Prom. sur les Côtes de Gascogne, P. *Massoniàna Lamb.* ed. 2.: *Pin de Bordeaux, Pin des Landes*, Fr.; *Pinastro*, Ital.
2 Aberdòniæ G.M. 963
P. P. *Escarènus Arb. Brit.*
3 Lemoniànus - 963
P. *Lemoniàna Benth.* 963
4 mìnor - - 963
P. *marítima min.* N.D.H. *Pin Pinsot, Pin de Mans, Pin à Trochet*, Fr.
5 fòliis variegàtis - 963
6 marítimus - 963
*Other Varieties* - - 963

8. Pínea *L.* - - 965
The Stone Pine. — P. *sativa*, P. *sativa* Bauh. Pin.; P. *doméstica* Matth. Comm.: *Pin Pignon, Pin bon, Pin cultivé, Pin Pinier*, Fr.; *Gneissbere Fichte*, Ger.; *Pino da Pinocchi*, Ital.
2 frágilis *N. Du H.* 965
3 crética *Hort.* - 965

9. halepénsis *Ait.* - 967
P. *hierosolymitàna* Du Ham. Arb.; P. *marítima prima* Matthiolus; *Pin de Jérusalème*, Fr.; *Pino d'Aleppo*, Ital.
2 mìnor - - 967
3 marítima - - 968
P. *marítima* Lamb. Pin.
4 genuénsis - - 968
P. *genuénsis* Cook.

10. brúttia *Ten.* - 968
The Calabrian Pine. — P. *conglomeràta* Græffer Pl. Exsicc; *Kalabrische Kiefer*, Ger.

B. *Natives of N. America.*

11. Banksiàna L. 969
The Labrador Pine. — P. *sylvéstris divaricàta* Ait. Hort. Kew., P. *rupéstris* Mx. N. Amer. Syl., P. *hudsónica* Lam. Encyc.: *Scrub Pine, Hudson's Bay Pine*: *Ypres*, Canada.

12. ìnops *Ait.* - 970
The Jersey Pine. — P. *virginiàna* Du Roi Harbk. ed Pott.: *Pin chétif*, Fr.

13. púngens *Michx.* 971
*The Table Mountain Pine.*

14. resinòsa *Ait.* - 972
The red Pine. — P. *rùbra* Michx. N. Amer. Syl.: *Norway Pine*, Canada; *Yellow Pine*, Nova Scotia; *le Pin rouge de Canada*, Fr.

15. mìtis *Michx.* - 974
The yellow Pine. — P. *variábilis* Pursh Fl. Amer. Sept.: ? P. *echinàta* Mill. Dict.: *New York Pine, Spruce Pine, Short-leaved Pine, Yellow Pine*, Amer.

16. contórta *Doug.* 975

17. turbinàta *Bosc* 975

§ ii. *Ternàtæ.—Leaves 3 in a Sheath.*

A. *Natives of N. America.*

18. Tæda *L.* - 976
The Loblolly Pine. — P. *fòliis térnis* Gron. Virg., P. *virginiàna tenuifòlia triplicis* Pluk. Alm.: *White Pine*, at Petersburg and Richmond, in Virginia.
2 alopecuröidea *Ait.* 976

19. rígida *Mill.* - 977
The Pitch Pine. — P. Tæda α Poir. Dict.: ? *Three-leaved Virginian Pine, Sap Pine, Black Pine*: *Pin hérissé, Pin rude*, Fr.

20. (r.) Fràseri L. 979

21. (r.) serótina *Mx.* 979
The Pond Pine. — ? P. Tæda alopecuröidea Ait. Hort. Kew. ed. 2.
*P.* variábilis *Lamb. Pin.* - 980

22. ponderòsa *Doug.* 981

23. Sabiniàna Doug. 982
*The great prickly-coned Pine.*

24. (S.) Coúlteri D. 985
The great hooked Pine. — ? P. *Sabiniàna var.* Hort.; ? P. *macrocárpa* Lindl. MSS.
2 vèra - - 985

25. austràlis *Mx.* 987
P. *palústris* Willd. Sp. Pl., Pursh Sept., Lamb. Pin. ed. 1.; P. *americàna palústris*, &c., Hort. Angl. Du Ham. Arb., P. *serótina* Hort.: in America, *Long-leaved Pine, Yellow Pine, Pitch Pine*, and *Broom Pine*, in the southern states; *Southern Pine* and *Red Pine*, in the

northern states; *Yellow Pine* and *Pitch Pine*, in the middle states; *Georgia Pitch Pine* of the English and West Indian merchants.
2 excélsa - - 988
P. *palústris excélsa* Booth.
26. insígnis *Doug.* 988
27. californiàna *L.* 989
P. *montereyénsis* Godefroy, P. *adúnca* Bosc: *Pin de Monterey*, Bon Jard. ed. 1837.
28. muricàta *D.Don* 987
*Obispo*, Span.
29. tuberculàta *Don* 990
30. radiàta *D. Don* 990

B. *Natives of Mexico.*

31. *Teocòte* S. & D. 991
*Teocote* and *Ocote* of the Mexicans.
32. pátula *S. & D.* 992
2 fòliis stríctis *Bnth.* 993
33. Llaveàna Sch. 993
P. cembröides Zucc. Flora: *the Mexican Cembra*, Penny Cyc.

C. *Natives of the Canaries, India, Persia, China, and Australia,*

34. canariénsis *Sm.* 994
? P. *adúnca* Bosc.
35. longifòlia *Roxb.* 996
36. Gerardiàna W. 998
The short-leaved Nepal Pine. — P. Neòsa *Govan: eatable-seeded Pine* of the East Indies; *? Chilghòza* Elphinstone; *the Neosa Pine*, Penny Cyc.
37. sinénsis *Lamb.* 999
P. ? Kesèya *Royle*, P. *nepalénsis* Pin. Wob., P. *Cavendishiàna Hort.*
38. timoriénsis - 1000

§ iii. *Quìnæ. — Leaves 5, rarely 4, in a Sheath.*

A. *Cones with the Scales thickened at the Apex.*

a. *Natives of Mexico.*

39. Hartwègii Ldl. 1000
40. Devoniàna Ldl. 1001
*Pino blanco*, or *P. real*, of the Mexicans.
41. Russelliàna L. 1003
42. Montezùmæ L. 1004
The rough-branched Mexican Pine. — *Pinus occidentàlis* Kunth in Humb. et Bonpl. Nov. Gen. et Sp. Pl., Deppe in Schlecht. Linnæa.
2 Lindlèyi - 1004
43. macrophýlla *L.* 1006
44 Pseùdo-Stròbus 1008
*The False Weymouth Pine.*
45. filifòlia *Lindl.* 1008
46. leiophýlla *Schd.* 1011
*Ocote chino* in Mexico.
47. oöcárpa *Schd.* 1012
? oöcarpòides *Benth.* 1013
48. apulcénsis *Ldl.* 1014
P. *acapulcénsis* G. Don in Sweet Hort. Brit. ed. 3.

b. *Natives of the West Indies.*

49. occidentàlis *S.* 1015
P. *fòliis quinis*, &c., Plum. Cat., *Làrix americàna* Tourn. Inst.: *Ocote*, Mexican.

B. *Cones with the Scales not thickened at the Apex.*

a. *Natives of Europe and Siberia.*

50. *Cémbra* L. - 1016
P. *fòliis quinis*, &c., Gmel. Sib.; P. *sativa* Amm. Ruth.; P. *sylvéstris*, &c., Bauh. Pin.; P. *sylvéstris* Cémbro *Cam. Epit.*; *Làrix sempervirens*, &c., Breyn. in Act. Nat. Cur. Cent.; *Pináster Alcùo*, &c., Bell. Conifer.; *Tæ'da árbor*, Cémbro *Italòrum*, Dale Hist.: *Aphernousli Pine, five-leaved Pine, the Siberian Stone Pine, the Swiss Stone Pine: Aroles* in Savoy; *Alvics* in Switzerland; *Cémbra* in Dauphiné; *Ceinbrot, Eouve, Tinier*, Fr.; *Zurbelkiefer*, Ger.; *Pino Zimbro*, Ital.; *Kedr*, Russ.
1 sibírica - - 1016
P. Cémbra *Lodd. Cat.*
*Kedr*, Pall.
*Cedar* of some authors.
*Siberian Stone Pine*, or *Siberian Cedar.*
2 pygmæ'a - - 1016
P. C. *pùmila* Pall. Ross.
*Slanez*, Russ.
3 helvética *Lodd.* 1016

b. *Natives of North America.*

51. *S*tròbus *L.* - 1018
The Weymouth Pine. — P. *fòliis quìnis, &c.*, Gron. Virg.; P. *canadénsis quinquæfòlia* Du Ham. Arb., P. *virginiàna* Pluk. Alm., *Làrix canadénsis* Tourn. Inst.: *New England Pine, white Pine, Pumpkin Pine, Apple Pine, Saplin Pine*, Amer.; *Pin du Lord, Pin du Lord Weymouth*, Fr.
2 álba *Hort.* - 1018
3 brevifòlia *Hort.* 1018
4 compréssa *Booth* 1018
P. S. *nòva* Lodd. Cat.
*Floetbeck Weymouth Pine.*
52. (*S*tr.) Lamberti*àna* Doug. - - 1019
*The gigantic Pine.*
53. (*S.*) montícola 1021
*The short-leaved Weymouth Pine.*

c. *Natives of Nepal and Mexico.*

54. (*S.*) excélsa *W.* 1022
The Bhotan Pine. — P. *Dicksònii Hort.*: *Chilla*, or *Chylla*, Himalayas; *Kuel*, Sirmone and Gurhwal; *Lemshing*, Bhotea; *Raesula*, or *King of the Firs*, Hindostan.
55. *Ayacahuìte* Ehr. 1023
*Piñones.* It is so called because it was believed that the Ayacahuite, the aboriginal name of this species, had originated in P. Piñones (*P.* Llaveàna).

II. *A*'BIES *D. Don* 1025
The Spruce Fir. — *Pinus* of Lin. and others, *in part; Picea* Link in Abhand. Konig. Akad. Wissens. Berlin, 1827; A'*bies* of Tourn., Mill., and others, *in part; Picca* of the ancients: *Sapin épicea*, Fr.; *Fichtenbaum*, Ger.; *Abete*, Ital.; *Abieto*, Span.

§ i. *Leaves tetragonal, awl-shaped, scattered in insertion.*

A. *Natives of Europe and the Caucasus.*

1. excélsa *Dec.* - 1026
The Norway Spruce Fir. — A. *commùnis* Hort., A. *Picca* Mill. Dict., *Pinus* A'*bies* Lin Sp. Pl., *Pinus Picca* Du Roi Harbk. ed. Pott., P. *excélsa* Lam. Fl. Fr. ed. 1., *Picea vulgàris* Link in Abhand.: *common Spruce, Prussian Fir: faux Sapin, Epicea, Sapin-Pesse, Serente, Sapin gentil, Pinesse*, Fr.; *Lafie*, in the Vosges; *gemeine rothe Tanne, gemeine Fichte*, Ger.; *Pezzo, Abete di Germania*, or *di Norvegia*, Ital.
1 commùnis - 1026
*White Fir of Norway.*
2 nìgra - - 1026
*Red Fir of Norway.*
3 carpática - - 1027
A. *carpática* Hort.
4 péndula - - 1027
A. *commùnis péndula* B.
5 fòliis variegàtis 1027
6 Clanbrasili*àna* 1027
7 Clanbr. strícta 1027
8 pygmæ'a - - 1027
A. *nàna* Hort. Soc. Gard.
A. *élegans* Smith of Ayr.
9 tenuifòlia - 1027
A. *tenuifòlia* Sm. of Ayr.
10 gigantèa - - 1027
A. *gigantèa* Smith of Ayr.
11 monstròsa - 1027
A. *monstròsa* Hort.
12 mucronàta *Hort.* 1027
*Other Varieties* - - 1027
2. orientàlis *Tourn.* 1029
*Pinus orientàlis* Lin. Sp. Pl., Lamb. Pin. ed. 2., *Picea orientàlis* Link & Steven in Bull. Soc. Nat. Mos.
3. obovàta *D. Don* 1029
*Picea obovàta* Led. Icon. Pl. Fl. Ross.

B. *Natives of North America.*

4. álba *Michx.* - 1030
*Pinus álba* Ait. Hort. Kew.,

P. *láxa* Ehrh. Beitr., P. *canadénsis* Du Roi Harbk., A. *curvifòlia* Hort.: *single Spruce*, Amer.; *Epinette blanche*, Canada; *Sapinette blanche*, Fr.

2 nàna *Dickson* - 1030

*Other Varieties* - - 1030

5. nìgra *Poir.* - 1031

P*inus nigra* Ait. H. K., P. *mariàna* Ehr. Beyt., A'*bies mariàna* Wangh. Beyt.: *double Spruce; noire Epinette, Epinette à la Bière*, Canada.

*Varieties* - - - 1031

6. (n.) rùbra *Poir.* 1032

The Newfoundland Red Pine. — P. *americàna rùbra* Wangh. Beyt., P*inus rùbra* Lamb. Pin., Pursh Sept.; A'*bies pectinàta* Lam.

2 cærùlea - - 1032

A. *cærùlea* Booth.

C. *Natives of Nepal.*

7. *Khùtrow* - - 1032

A. *Smith*iàna *Arb. Brit.* 1st ed., P*inus* Khùtro *Royle Ill.*, ? P*inus Smith*iàna *Wall. Pl. As. Rar.*, A'*bies Smith*iàna *Lindl. Pen. Cycl.*, A. Morinda *Hort.*: *Raga*, or *Raggoe*, in the Parbutee language.

*Varieties* - - - 1033

§ ii. *Leaves flat, generally glaucous beneath, imperfectly 2-rowed.*

D. *Natives of North America.*

8. Douglàs*ii* Lindl. 1033

The trident-bracted Spruce Fir. — P. *taxifòlia* Lamb. Pin., Pursh Fl. Amer. Sept.; A. *califórnia* Hort.; P*inus Douglàsii Sabine MSS., Lamb. Pin.*: *the Nootka Fir*, Smith in Rees's Cycl.

2 *t*axifòlia - - 1033

9. Menziès*ii* Doug. 1034

The warted-branched Spruce Fir. — P*inus Menziès*ii *Lamb. Pin.*

10. canadénsis *Mx.* 1035

The Hemlock Spruce Fir. — P. *canadénsis* Lin. Sp. Pl., P. *americàna* Du Roi Harbk., Smith in Rees's Cycl.; A'*bies americàna* Marsh. Arb. Amer.: *Perusse* by the French in Canada; *Sapin du Canada*, Fr.; *Schierlings Fichte*, Ger.

E. *Native of Nepal.*

11. dumòsa - 1036

P*inus dumòsa* Lamb. Pin., A'*bies Brunon*iàna *Lindl.* in Pen. Cycl., P. *decídua* Wall. MSS., P. *Brunon*iàna *Wall. Pl. As. Rar.*

*Other Species of* A'*bies.* — *A.* Mertens*iàna* Bong., *A.* sitchénsis *Boug.*, *A.* trigòna, *A.* heterophýlla, *A.* aromática, *A.* microphýlla, *A.* obliquàta, and *A.* falcàta, *A.* hirtélla *Humboldt et Kunth. A.* Kæmpfèr*ii* Thunb., *A.* Thunbérgi*i* Thunb., *A. Mórni* Sieb., *A. Torànо* Sieb., *A. Araràgi* Sieb. - - - 1036

III. Pi'cea *D. Don* 1036

The Silver Fir. — P*inus* Lin. *in part*; P*inus sect.* Picèce D., Don in Lamb. Pin.; A'*bies* Lk., Nees von Esenbeck, and Ledebour; A'*bies* Du Roi, *in part*: *Sapin*, Fr.; *Tannen*, Ger.

A. *Natives of Europe, Siberia, and the North-west of Asia.*

1. pectinàta - - 1037

A'*bies* of Pliny, P*inus Picea* Lin. Sp. Pl., P. A'*bies* Du Roi Harbk., A'*bies álba* Mill. Dict., A. T*áxi fòlio* Tourn. Inst., A. *vulgàris* Poir. Dict., A. *pectinàta* Dec. Fl. Fr., A. *taxifolia* Hort. Par., A. *Picea* Lind. in Penn. Cyc., A. *excélsa* Link Abhand. &c.: *Spanish Fir*: *Sapin commun, Sapin à Feuilles d'If, Sapin blanc, Sapin argenté, Sapin en Peigne, Sapin de Normandie*, Fr.; *Weiss Tanne Edeltanne*, Ger.; *Abete argentino*, Ital.

2 tortuòsa *Booth* 1037

3 fòliis variegàtis 1037

4 cinèrea - - 1037

P*inus Picea cinèrea* B. C.

2. (p.) cephalònica 1039

A *bies cephalónica* Arb. Brit. 1 ed., A. *taxifòlia* Hort., A. *Luscombe*àna *Hort.*: *Koukounaria* and *Elatos* in Cephalonia; *Mount Enos Fir.*

3. (p.) *Pinsàpo* - 1041

A'*bies* Pinsàpo *Boissier* in Bibl. Univ. de Genève: *Mount Atlas Cedar*, Dec. MSS.

4. (p.) Nordmann*iàna* 1042

P*inus Nordmann*iàna *Stev.*

5. (p.) *Píchta* - - 1043

P*inus Pichta* Lodd. Cat. 1836; P. *sibirica* Hort.; A *bies sibirica* Ledebour Icon. Pl. Fl Ross., Lind. in Penny Cyc.; *A. Pichta* Fischer: *Pichta*, Russ.

B. *Natives of N. America.*

6. balsàmea - - 1044

The Balm of Gilead, or *American*, Silver Fir. — P*inus balsàmea* Lin. Sp. Pl., P. A *bies balsàmea* Marsh. Arb. Amer., A'*bies* T*áxi fòlio*, &c., Hort. Angl., *A. balsaminea* N. Du Ham., *A. balsamifera* Michx. N. Amer. Syl.: *Balsam Fir*: *le Baume de Gilèad, le Sapin Baumier de Gilèad*, Fr.; *Balsam Fichte, Balsam, Tanne*, Ger.; *Pino balsamifero*, Ital.

2 longfòlia *Booth* 1044

7. (b.) Fràser*i* - 1044

The double Balsam Silver Fir. — P*inus Fràseri Pursh Fl. Amer. Sept., Lamb. Pin.*; A'*bies Fràseri Lind.* in *Penn Cyc.*

C. *Natives of California.*

8. grándis - - 1045

P*inus grándis* Dougl. MSS Lamb. Pin.; A'*bies grándis* Lindl. in Penny Cycl.: *the great Californian Fir.*

9. amábilis - - 1046

P*inus amábilis* Doug. MSS.

10. nóbilis - - 1047

Thelarge-bracted Silver Fir. — P*inus nóbilis* Doug. MS., Lamb. Pin., A. *nobilis* Lindl. in Penny Cycl.

11. bracteàta - 1048

P*inus bracteàta*. D. Don in Lin. Trans., Lamb. Pin.; P. *venústa* Doug. in Comp. to Bot. Mag.

D. *Natives of Mexico.*

12. religiòsa - 1049

P*inus religiòsa* Humb. et Kunth Nov. Gen. et Sp. Pl., Schiede et Deppe in Schlecht. Linnæa; A'*bies religiòsa* Lindl. in Penny Cycl.

13. hirtélla - - 1050

A'*bies hirtélla* Lindl. in Penny Cycl., P*inus hirtélla* Humb. et Kunth.

E. *Natives of Nepal.*

14. Webb*iàna* - 1051

P*inus Webb*iàna *Wall. in Litt., Lamb. Pin.* ed. 2.; P. *spectábilis* Lam. Monog; A'*bies Webb*iàna Lindl. in Penny Cyc., Royle Illust.: *Chilrow*, and *the Ponum*, or *Purple-coned Fir*, in the Himalayas.

15. *Píndrow* - 1052

The Tooth-leaved Silver Fir. — P*inus* Pindrow *Royle Ill., Lamb. Pin.*; T*áxus Lamber*tiàna *Wall. Cat.*; *Pindrow*, and sometimes *Morinda*, in the Himalayas.

16. náphtha *Hort.* 1053

IV. La'rix *Tourn.* 1053

The Larch. — P*inus* Lin. and others; A'*bies* Rich.; *Melèze*, Fr.; *Lerchenbaum*, Ger.; *Larice*, Ital.

1. europæ'a *Dec.* 1053

P*inus* Là*rix* Lin. Sp. Pl.; A'*bies* Lin. Hort. Cliff.; Là*rix decidua* Mill. Dict.; Là*rix folio deciduo, &c.*, Bauh. Hist.; Là*rix* Bauh. Pin.; A'*bies Larix* Lam. Illust.; *Melèze commune*, Fr.; *Lörche, Lorcher-Fichte, gemeiner Lerchenbaum, Terbentinbaum, Europäische Ceder, weisser Lerchenbaum*, Ger.

1 commùnis *Laws.* 1054

2 láxa *Laws.* - 1054

3 compácta *Laws.* 1054

4 péndula *Laws.* 1054

Godsall*ii* G.M. - 1054

rèpens *Laws.* - 1054

5 flòre rùbro *H. T.* 1054

6 flòre álbo - - 1054

7 sibírica - - 1054

L. *sibírica* Fisch.

? L. *archangélica* Laws.

L. *róssica* Lab. in Hort. Soc. Gard.

P*inus* Là*rix sibírica* Lod. *The Russian Larch.*

8 dahùrica - - 1055

L. *dahùrica* Laws. Man.

9 intermèdia - 1055
L. *intermèdia* Laws. Man. Pinus *intermèdia* Lod. Ct.
*Other Varieties* - - 1055

2. americàna *Mx.* 1056
Pinus *larícina* Du Roi Harbk. ed. Pot., P. *microcárpa* Willd. Baum.; A'*bies microcárpa* Poir.: *Hackmatack*, Amer.; *Tamarack*, by the Dutch in New Jersey; *E'pinette rouge* in Canada.
1 rùbra - - 1056
L. *microcárpa* Laws. Pinus *microcárpa* Pursh *E'pinette rouge*, Canada.
2 péndula - - 1056
L. *péndula* Laws. Man. Pinus *péndula* Ait. Hort. P. *intermèdia* Du Roi Hk. P. *Làrix nigra* Marsh. A'*bies péndula* Poir. Dict. *Tamarack*, Amer.
3 prolífera - 1056
L. *prolífera* Malcolm.

V. CE'DRUS *Barr.* 1057
The Cedar.—Pinus Lin. *in part;* A'*bies* Poir. *in part*, *Làrix* Tourn. *in part*: *Cèdre*, Fr.; *Ceder*, Ger.; *Cedro*, Ital.

1. Libàni *Barr.* - 1057
Pinus *Cèdrus* Lin. Sp. Pl.; P. *fòliis fasciculàtis*, &c., Du Roi Harbk. ed. Pott.; *Làrix Cedrus* Mill. Dict.; *Làrix orientàlis* Tourn. Inst.; *Cèdrus mágna* Dod. Pempt.; C. *conifera* Bauh. Pin.; C. *phœnicea* Renealm Sp.; *Cèdrus* Bell. It.; A'*bies Cèdrus* Poir Dict. Encyc.
2 fòliis argénteis 1058
3 nàna - - 1059

2. *Deodàra* Roxb. 1059
The Indian Cedar.—Pinus Deodàra *Lamb. Pin.*, A'*bies* Deodàra *Lindl.* in Penny Cyc.: *Devadara*, or *Deodara*, Hindostanee; *the sacred Indian Fir.*
*Varieties* - - 1059

VI. ARAUCA'RIA *J.* 1061
*Eutássa* Sal., *Colymbèa* Sal., *Dombèya Lamb.*, *Cupréssus* Forst.: *the Southern Pine.*

1. imbricàta *Pav.* 1062
The Chili Pine.—A. *Dombèyi Rich. Mém. sur les Conif.*, Pinus *Araucária* Mol. Sag. sulla Stor. Nat. del Chili, *Colymbèa quadrifùria* Salisb. in Lin. Trans., *Dombèya chilénsis* Lam. Encyc.: *Pino de Chili*, Span.; *Peghuen* in the Andes; *Sir Joseph Banks's Pine.*
*Other Species of Araucária.*—A. brasiliàna *Rich.*, A. excélsa *Ait.*, and A. Cunninghâmii Ait., are half-hardy species which are figured and described in first edition.

VII. CUNNINGHA'MIA.
Pinus Lamb., *Bèlis* Salisb.

1. sinénsis *Rich.* - 1065
The broad-leaved Chinese Fir.—*Bèlis jaculifòlia* Salisb in Lin. Trans., Pinus *lanceolàta* Lamb. Monog., *Cunninghâmia lanceolàta* R. Br., *Araucária lanceolàta* Hort,

*DA'MMARA* orientàlis *Lamb.* - - 1066

Tribe II. CUPRE'SSINÆ.

VIII. THU'JA *L.* 1068
The Arbor Vitæ.—*Thuya*, or *Arbre de Vie*, Fr.; *Lebensbaum*, Ger.; *Tuja*, Ital.

§ i. *Thùjæ veræ.*

1. occidentàlis *L.* 1068
The American Arbor Vitæ.—*Thùja Theophrásti Bauh. Pin.*, *A'rbor Vitæ* Clus. Hist.: *white Cedar*, Amer., *Cèdre américain*, *Cèdre blanc*, *Arbre de Vie*, Fr.; *gemeiner Lebensbaum*, Ger.; *Albero de Vita*, Ital.
2 variegàta *Marsh.* 1069
T. *o. fòliis variegàtis* Lod.

2. (o.) plicàta *Donn* 1069
*Nee's Arbor Vitæ.*

3. chilénsis *Lamb.* 1070
*Cupréssus thyóides* Pavon MSS.

§ ii. *Biòta.*

4. orientàlis *L.* - 1070
*The Chinese Arbor Vitæ.*
2 stricta *Hort.* - 1070
T. *pyramidàlis* Baum.
3 tatárica - - 1070
T. *tatárica* Lod. Cat.
T. *Warèna* *Booth Cat.*

§ iii. *Cypariśsa.*

*Tender Species.*—*T.* cupressòides *L.*, *T.* pénsilis *L.* 1071

5. péndula *Lamb.* 1071
? T. *filifórmis* Lodd., ? *Juniperus flagellifórmis* Hort.
*Other Species.*—*T.* filifórmis *Lodd.* (? T. *péndula* Lamb.), *T.* dolabràta *L.* - - 1071

IX. CA'LLITRIS *V.* 1072
*Thùjà, part of*, Lin.; *Fresnèlia Mirbel Mém. Mus.*

1. quadriválvis *Ven.* 1072
*Thùja articulàta* Desf. All. Arb. et Arbriss., *Cupréssus articulàta* Pin. Wob.
*Other Species of Callitris.*—C. Fothergilli (? *Cupréssus Fothergilli*), C. triquetra (*Cupréssus triquetra* Lodd. Cat. 1836), C. cupressifórmis *Vent.*, C. macrostàchya *Hort.* 1072

X. CUPRE'SSUS *L.* 1073
The Cypress.—*Cyprès*, Fr.; *Cypresse*, Ger.; *Cipresso*, Ital.; *Ciproste*, Port.; *Cypros*, Hungarian.

1. sempervìrens *L.* 1073
The common Cypress.—C. *pyramidàlis* Hort., ? C. *fastigiàta* Hort. & Pin. Wob.: *Cyprès pyramidal*, *Cyprès ordinaire*, Fr.; *gemeine Cypressenbaum*, Ger.: *the Italian Cypress.*
1 stricta *Mill. Dict.* 1073
*Cyrès male*, Fr.
2 horizontàlis *Mill.* 1073
C. *horizontàlis* N. Du H. C. *expánsa* Hort. Par. *Cipresso femíno*, Ital.

2. thyóides *L.* - 1074
The White Cedar.—*Thùja sphæroìdàlis* Rich. Mém. sur Conif.: *Cyprès faux Thuja*, Fr.
2 fòliis variegàtis 1075
3 nàna *Hort.* - 1075

3. lusitánica *Tourn.* 1075
The Cedar of Goa.—C. *glaúca* Brot. Fl. Lus., C. *péndula* L'Hérit. Stirp. Nov.: *Cedar of Bussaco;* C. *péndula* Thunb., Lamb. Pin., is supposed to be a different plant.

4. torulòsa *Lamb.* 1076
*The Bhotan Cypress.*

5. péndula *Thunb.* 1076
*Fi-moro*, Kæmpf. Amœn.
*Other Kinds of Cupréssus, some of which have been introduced, but of which little is known.*—C. horizontàlis *Audibert*, C. thurifera H. B. et K., C. Tournefórtii Audibert, C. baccifórmis *Willd.*, C. austràlis *Pers.*, C. sabinóides *H. B. et K.*, C. Coultèrii Pin. Wob. (? C. *thurifera* H. B. et K.), C. fastigiàta *Hort. Pin. Wob., Gard. Mag.* (*Juniperus fastigiàta* Hort.) - - 1077

XI. TAXO'DIUM *R.* 1077
The deciduous Cypress.—*Cupréssus* L., *Schubértia Mirb.*, *Condylocárpus* Salisb.

1. dístichum *Rich.* 1078
*Cupréssus disticha* Lin. Sp. Pl., Pursh Flor. Amer. Sept., C. *americàna* Cat. Carol., C. *virginiàna* Comm. Hort., *Schubértia disticha* Mirb.: *bald Cypress*, *Cypress*, Amer.; *Cyprès chauve*, Fr.; *Zweyzeilige Cypresse*, Ger.; *Cipresso gaggia*, Ital.
1 pàtens *Ait. Hort.* 1078
2 nùtans *Ait.* - 1078
*T. d. péndula* Loud. H. B.
3 excélsum *Booth* 1078
4 sinénse - - 1078
*T. sinénse* Noisette.
5 péndulum - 1078
*T. sinénse péndulum* Hort.
*Other Species of Taxódium.*—T. sempervìrens *Lamb.* 1080

XII. JUNI'PERUS *L.* 1080
The Juniper.—*Sabìna* Bauh.; *Cedrus* Tourn.: *Genévrier*, Fr.; *Wachholder*, Ger.; *Ginepro*, Ital.

§ i. *Oxýcedri.*—*Leaves spreading in the adult Plants.* D. Don.

A. *Natives of Europe.*

1. commùnis *L.* - 1081
J. *vulgàris*, &c., Raii Syn.;

J. *mìnor* Fuchs Hist.: *Genévrier commun*, Fr.; *gemeiner Wachholder*, Ger.; *Ginepro nero*, Ital.
1 vulgàris *Park. T.* 1081
J. *v. fruticòsa* Bauh. Pin.
J. *c. eréctis* Pursh Flor. Amer. Sept.
2 suécica *Ait. Hort.* 1081
? J. *c. fastigiàta* Des Moulin's Cat. des Plantes de la Dordogne.
J. *stricta* Hort.
J. *suécica* Mill. Dict.
J. *vulgàris árbor* Bauh. *The Tree Juniper.*
3 nàna *Willd. Sp.* 1081
J. *commùnis β* Fl. Br.
J. *c. saxátilis* Pall. Ross.
J. *alpìna* Raii Syn.
J. *alpìna mìnor* Ger.
J. *minor montàna, &c.*, Bauh. Pin.
J. *nàna* Smith Engl. Flor.
J. *sibìrica* Hort.
J. *dàùrica* Hort. & Booth.
J. *c. montàna* Ait. Hort. Kew.
4 oblónga - - 1082
J. *oblónga* Hort.
5 péndula - - 1082
6 canadénsis - 1082
J. *canadénsis* Lodd. Cat.
7 deprèssa *Pursh* 1082
*Other Varieties* - - 1082

2. Oxýcedrus *L.* - 1083
The brown-berried Juniper. — J. *màjor* Cam. Epit.; J. *m. monspeliénsium* Lob. Ic.; J. *phœnicea, &c.*, J. Bauh. Hist.; J. *màjor, &c.*, C. Bauh.; *Cèdrus phœnicea*, Matth. Valgr.; *Oxýcedrus* Clus. Hist.; O. *phœnicea* Dod. Pempt.: *the Prickly Cedar: le Cade*, Fr.; *Spanische Wachholder*, Ger.; *Cedro Fenicio*, Ital.
2 taúrica *Hort.* - 1083

3. macrocárpa *S.* 1083
? J. *Oxýcedrus var.*; J. *màjor, baccâ cæruleâ*, Tourn. Inst.

B. *Native of Asia.*

4. drupàcea *Lab.* 1084
The large-fruited Juniper.— J. *màjor* Bellon Obs.

C. *Native of N. America.*

5. virginiàna *L.* - 1084
The Red Cedar. — J. *màjor americàna* Raii Hist.; J. *máxima, &c.*, Sloan; *Ginepro di Virginia.*
2 hùmilis *Lodd. C.* 1084
3 carolinìàna - 1084
J. *carolinìàna* Du Roi Mill. Dict.
*Other Varieties* - - 1084

*Other Species of Juniperus.*— *J.* bermudiàna *L.* and *J.* nepalènsis *Hort.* (*Cupréssus nepalènsis* Hort.) are described in our first edition.

§ ii. *Sabìnæ. — Leaves of the adult Plant imbricated.* D. Don.

A. *Natives of Europe.*

6. Sabìna - - 1085
The common Savin.—*Sabine*, Fr.; *stinkender Wachholder*, Ger.; *Pianta daunata* and *Cipresso des Maghi*, Ital.
1 cupressifòlia *Ait. H. K.*
J. *lusitánica* Mill. Dict.
*Sabina* Dod. Pempt.
*La Sabine mâle*, Fr.
2 tamariscifòlia *Ait.*
J. *Sabìna* Mill. Dict.
*La Sabine femelle.*
3 fòliis variegàtis *Mart.*
4 prostràta - 1086
J. *prostràta* Mx.;
J. *rèpens* Nutt.
J. *hudsónica* Lodd. Cat.
5 alpìna - - 1086
J. *alpìna* Lodd. Cat.

7. phœnícea *L.* - 1087
*Cèdrus phœnícea mèdia* Lob. Icon., *Oxýcedrus lýcia* Dod. Pempt.: *Genévrier de Phénicie*, Fr.; *dichtnadliger Wachholder*, Ger.; *Cedro licio*, Ital.

8. (p.) lýcia *L.* - 1087
J. *p. β lýcia* N. Du Ham.: *Cipressen Wachholder*, Ger.

9. thurífera *L.* - 1088
Spanish Juniper. — J. *hispánica* Mill. Dict.; *Cèdrus hispánica, &c.*, Tourn. Inst.

B. *Natives of Asia.*

10. excélsa *Willd.* 1088
J. *Sabìna var.* Pall. Ross.; *Himalaya Cedar-wood.*

11. squamàta *Don.* 1088
The creeping Cedar.— J. *squamòsa* Wall.

12. recúrva *Ham.* 1089
13. chinénsis *L.* - 1089
? J. *c. Smithii Arb. Brit. ed.* 1.

14. uvífera *D. Don* 1089
*Other Species of Juniperus, of recent Introduction, but of which little is known.* — *J.* tetragòna *H. B et K.*, *J.* fláccida *Schiede*, *J.* dealbàta *Hort.*, *J.* flagellifórmis *Hort.*, *J.* gossainthànea *Hort.*, *J.* Bedfordiàna Hort., *J.* Hudsoniàna Pin. Wob., *J.* barbadénsis *L.*, *J.* hemisphæ'rica *Presl* . 1089

## *Empetràceæ.*

I. E'MPETRUM *L.* - 1091
The Crowberry.

1. nìgrum *L.* - 1091
The Crakeberry.—*Erica coccífera procúmbens* Ger. Emac., E. *Còris fólio undecima* Clus. Hist.
2 scóticum *Hook.* - 1091

2. rùbrum *L.* - 1091
*Cranberry of Staten Island.*

3. Conràdii Torrey 1092

II. CORE'MA *D. Don* 1092
E'*mpetrum, in part*, L

1. álba *D. Don* - 1092
E'*mpetrum álbum* Lin. Sp.; *E. lusitánicum, &c.*, Tour. Inst.; *Erica eréctis, &c.*, Bauh. Pin.: *the white-berried Heath, Portugal Crakeberry.*

III. CERATI'OLA - 1092
1. ericoìdes - - 1093

# Class II. ENDO'GENÆ.

## *Smilàceæ.*

I. SMI'LAX *L.* - 1093
*Smilax* Fr. and Ger.: *Smilace*, Ital.

§ i. *Stems prickly and angular.*

1. áspera *L.* - - 1094
Rough Bindweed. — *Rogo acerbone*, Ital.
2 auriculàta *Ait.* - 1094
3 mauritànica - 1094
S. *mauritánica* Poir.

2. excélsa *L.* - - 1094
S. *orientàlis, &c.*, Tourn. Cor., Bux. Cent.; S. *áspera* Alp. Ægypt. ed. 9.

3. rùbens *Wats.* - 1094
4. *Sarsaparilla* L. - 1095
S. *peruviàna* Sarsaparilla *Ger. Emac.*; S. *glaúca* Mx. Walt., Fl. Car.: *the glaucous-leaved Smilax: Salsa pariglia*, Ital.
5. hastàta *Willd.* - 1095
S. *Bòna-nox* Mx. Fl. Amer. S. *áspera var.* Lam. Encyc.
6. Wátsoni Swt. - 1095
S. *longifòlia* Wats. Den. Brit., S. *h.* 2 *lanceolàta* Arb. Brit. ed. 1.

7. Waltèrii Pursh 1095
S. *China* Walt. Fl. Car.

8. maculàta *Roxb.* 1096

§ ii. *Stems prickly, round.*

9. Chìna *L.* - - 1096
*Chìna ràdix* Bauh. Pin.; *Smilax áspera mìnor* Plum. Ic.; Sankira *vulgo* Quaquara, &c., Kæmpf. Amœn. Ex.: *Cena gentila*, Ital.

10. rotundifòlia *L.* 1096

11. laurifòlia *L.* - 1096
S. *áltera, &c.*, Plum. Ic.; S. *lævis, &c.*, Catesb. Car.

12. tamnoìdes *L.* - 1096
S. Bryòniæ nigræ, *&c.*, Cat. Car.

13. cadùca *L.* - 1097

14. glaùca *Sims* - 1097

§ iii. *Stems unarmed, 4-angled.*

15. Bòna-nóx *L.* 1097
The ciliated-leaved Smilax. — S. *áspera Indiæ occidentàlis* Bauh. Pin., S. *variegàta* Walt.

16. latifòlia *R. Br.* 1097

17. quadrangulàris 1097

§ iv. *Stems unarmed, round.*

18. lanceolàta *L.* - 1098
S. *non-spinòsa, &c.*, Cat. Car.

19. virginiàna *Mill.* 1098

20. pùbera *Willd.* - 1098
S. *pùmila* Walt. Car.

*Kinds of Smilax which are either not introduced, or of which we have not seen the Plants.* — S. ovàta *Pursh Fl. Amer. Sept.*, S. álba *Pursh*, S. pandurâta *Pursh*, S. nigra W., S. catalónica *Poir.*, S. hórrida *Desf.*, S. Villándsia Ham. (S. *macrophýlla* Roxb.), S. alpìna *W.* - - - - 1098

## Liliàceæ.

I. Ru'scus *L.* - 1099
The Butcher's Broom.—*Fragon*, Fr.; *Mäusedorn*, Ger.; *Rusco*, Ital.

1. aculeàtus *L.* - 1099
R. *myrtifòlius aculeàtus* Tour. Inst.: *Box Holly, Knee Holly, wild Myrtle, prickly Pettigree: Houx Frelon, petit Houx, Buis piquant, Fragon épineux, Fragon piquant*, Fr.; *Stechender Mäusedorn*, Ger.; *Rusco*, Ital.

2 rotundifòlius - 1099
R. *vul. fol. ampliòre* Dill.

3 láxus *Smith* - 1099
R. *láxus* Lodd. Cat.

2. hypophýllum *L.* 1100
The broad-leaved Butcher's Broom. — R. *latifòlius, &c.*, Tourn. Inst.; *Laúrus alexandrina* Lob. Adv.: *Fragon sans Foliole*, Fr.; *breitblättriger Mäusedorn*, Ger.; *Bonnifaccio*, Ital.

2 trifoliàtum - 1100
R. *trifoliàtus* Mill. Dict.

3. (h.) Hypoglóssum 1100
The double-leaved Butcher's Broom. — R. *angustifòlius, &c.*, Tourn. Inst.; *Hypoglóssum* Lob. Adv., *Uvulária* Brunf.: *Fragon à Foliole*, Fr.; *Zungen Mäusedorn*, Ger.; *Lingua pagana*, Ital.

4. racemòsus *L.* - 1101
The Alexandria Laurel.—R. *angustifòlius, frúctu súmmis rámulis, &c.*, Tourn. Inst.: *Fragon à Grappes*, Fr.; *Trauben Mäusedorn*, Ger.; *Lauro ideo*, Ital.

II. Yu'cca *L.* - 1101
The Adam's Needle.

1. gloriòsa *L.* - 1101
Y. *canadèna* Ald. Hort. Par.; Y. *indica, &c.*, Barr. Rar.; Y. *peruàna* Ger. Emac.; Y. *nòva gloriòsa, &c.*, Lob. Adv.: *the superb Yucca: Yucca nain, Yucca à Feuilles entières*, Fr.; *prächtiger Yucca*, Ger.

2 fòliis varieg. *Lod.* 1102

2. (g.) supérba - 1102
Y. *gloriòsa* Andr. Bot. Rep.

3. aloïfòlia *L.* - 1102
Y. *arborêscens, &c.*, Dill. Elth.; Y. *caulêscens* Mx. Fl. Bor. Amer.

2 péndula *Cat. Hrt.* 1102

4. dracònis *L.* - 1103
The drooping-leaved Adam's Needle. — Dracòni árbori, *&c*, Bauh. Pin.

5. stricta *Sims* - 1103
*Lyon's narrow-leaved Adam's Needle.*

6. recurvifòlia *Salis.* 1103
Y. *recúrva* Hort.

7. filamentòsa - 1103
The thready Adam's Needle. — Y. *fòliis filamentòsis* Moris. Hist.; Y. *virginiàna, &c.*, Pluk. Alm.

8. (f.) angustifòlia 1104

9. fláccida *Haw.* - 1104

10. glaucéscens *H.* 1104

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# SUPPLEMENTARY SPECIES AND VARIETIES, AND SYNONYMES.

## Ranunculàceæ.

Clemati'deæ.

Cle'matis.
califórnica *G. M.* 1111

Atra'gene.
macropétala *Led.* 1111

## Winteràceæ.

Illi'cium.
religiòsum *Sieb.* ? 1111
*Skimi*, Japan.

## Magnoliàceæ.

Magno'lia.
grandiflòra *var.* Hárwicus *Hort.* - 1111
purpùrea *var.* hýbrida *Hort.* - - 1111

## Berberàceæ.

Be'rberis.
vulgàris fol. purpùreis *Hort.* - - 1111

Maho'nia.
pállida - - 1111
Bérberis *pâllida* Hartw.

grácilis - - 1111
B. *grâcilis* Hartw.

trifoliàta - - 1111
B. *trifoliàta* Hartw.

lanceolàtum - 1112
B. *lanceolàtum* Benth.

angustifòlia - 1112
B. *angustifòlia* Hartw.

Hartwègii - 1112
B. *Hartwègii Benth.*

## Aurantiàceæ.

Limo'nia.
Laurèola *Wall.* 1112

## Hypericàceæ.

Hype'ricum.
rosmarinifòlium 1112

## Aceràceæ.

A'cer.
lævigàtum *Wall.* 1112
cólchicum *Hrtwis.* 1112
cólchicum *var.* rùbrum *Booth* - - 1112
campéstre rùbris 1112
c. heterocárpum 1112
glàbrum *Tor. & G.* 1112
tripartìtum *Nutt.* 1112
grandidentàtum 1112

*Æsculàceæ.*

*Æ'sculus.*
(H.) rubicúnda 1113

*Capparidàceæ.*

Iso'meris.
arbòrea *Nutt.* - 1113

*Vitàceæ.*

*Vi'tis.*
parvifòlia *Royle* 1113
heterophýlla *S.* ? 1113

*Aquifoliàceæ.*

*I'lex.*
*A*quif. péndulum 1113
latifòlia *Hort.* - 1113
? I. *laurifòlia* Hort.

*Rhamnàceæ.*

*Ceano'thus.*
a. 2 intermèdius 1113

*Rha'mnus.*
Wícklius *Jacq.* 1113
*p*runifòlius *Booth* 1113

*Anacardiàceæ.*

Duvau'*a.*
longifòlia *Hort.* 1113

*Leguminòsæ.*

*Sopho'ra.*
[? japonica] grandiflòra *Hort.* - - 1114
jap. pubéscens *B.* 1114

*Geni'sta.*
thyrsiflòra *Booth* 1114

Indigo'fera.
nepalénsis *Hort.* 1114

*Caraga'na.*
Gerardiàna Royl. 1114
*Tartaric Furze.*

*Astra'galus.*
fruticòsus *Dec.* 1114
vimíneus *Dec.* - 1114

*Rosàceæ.*

*Amy'gdalus.*
Pallàs*ii* Ledeb. 1114
A. *pedunculàta* Pallas.

*Pru'nus.*
*Mùme* Sieb. - 1114

*Ce'rasus.*
L. *var.* cólchica 1114
L. *var. Emerélli*(?) 1114

*Spiræ'a.*
físsa *Lindl.* - 1114
lanceolàta *Poir.* 1114
S. *Reevesiàna Hort.*
rotundifòlia *Lind.* 1114

Nutta'll*ia.*
cerasiformis *Tor.* 1115

*Ru'bus.*
lasiocárpus *Royl.* 1115
trílobus *Dec.* - 1115

*Cratæ'gus.*
*O*xyac. oxyphýlla 1115
*O.* frúctu coccíneo 1115
*P*yrac. fr. álb. *H.* 1115
rivulàris *T. et G.* 1115
coccínea *v.* víridis 1115
c. *var.* populifòlia 1115
c. *var.* oligándra 1115
c. *var.* móllis - 1115
arboréscens *Tor.* 1115
æstivàlis *T. et G.* 1115
C. *opàca* Hook.
*berberi*fòlia *Torr.* 1115

Cotonea'ster.
bacillàris *Wall.* 1115

*Amela'nchier.*
(v.) ovàlis 2 subcordàta - - 1115
*Petromèles ovàlis subcordàta* Jacquin.

*Py'rus.*
heterophýlla *B.* 1115

*Philadelphàceæ.*

Philade'lphus.
mexicànus *Benth.* 1115

*Grossulàceæ.*

*Ri'bes.*
taúricum *Jacquin* 1116

*Araliàceæ.*

*He'dera.*
*H*èlix *var.* taúrica 1116

*Cornàceæ.*

*Co'rnus.*
grándis *Benth.* - 1116
macrophýlla *Wall.* 1116

*Sambùceæ.*

*Vibu'rnum.*
*Awafùki* Sieb. ? 1116
? V. *japónicum* Hort.
sinénse *Zeyh.* - 1116
*Mullàha* Ham. 1116
V. *stellulàtum* Wall.
pygmæ'a *Royle* 1116

*Lonicèreæ.*

Loni'cer*a.*
ciliòsa *Poir.* - 1116

*Ericàceæ.*

*Arctosta'phylos.*
púngens *H. et B.* 1116
nítida *Benth.* - 1116

Perne'tty*a.*
angustifòlia *Lindl.* 1116
*P. phillyreæfòlia* Hort.

*Oleàceæ.*

Ligu'strum.
nepalénse - 1116
L. *vestitum* Wall.

*Syri'nga.*
*Emòdi* - - 1117
S. *indica* Wall.

*Polygonàceæ.*

*Poly'gonum.*
volcánicum *Ben.* 1117

*Asclepia*dàceæ.

Morre'n*ia.*
odoràta *Lindl.* - 1117

*Solanàceæ.*

Fabia'n*a.*
imbricàta *R. et P.* 1117

*Thymelàceæ.*

*Da'phne.*
Aucklándii Lindl. 1117

*Elæagnàceæ.*

*Elæa'gnus.*
parvifòlia *Royle* 1117

*Ulmàceæ.*

Spo'n*ia.*
canéscens *H. et B.* 1117
*Céltis canéscens* H. et B.

*Betulàceæ.*

*A'lnus.*
denticulàta *Fisch.* 1117

*Be'tula.*
móllis *Lindl.* - 1117

*Corylàceæ.*

Que'rcus.
*I'*lex *Ballòta* - 1117
lanàta - - 1117
Q. *nepalénsis.*
Skínneri Benth. 1117
? Q. *acutifòlia* Nees.
pyrenàica - - 1118
pannónica *Booth* 1118
rùbra - - 1118
r. *t*araxacifòlia *B.* 1118

*Fa'gus.*
sylvática - - 1118
s. 9 cochleàta *B.* 1118

*Platanàceæ.*

*Pla'tanus.*
[occidentàlis] heterophýlla *Hort.* 1118

*Coníferæ.*

*Pi'nus.*
oöcarpòides - 1118

Taxo'dium.
dístich. nucíferum 1118
*Táxus nucífera* Hort.

# AN ANALYSIS

OF THE

# COMMONER TREES AND SHRUBS OF BRITAIN,

WITH

## REFERENCE TO THEIR USES IN PLANTATIONS.

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*** Where the Generic Names only are given, the reader is left to select the Species and Varieties for himself. This he will readily be able to do by turning to the pages referred to after every Generic Name, and consulting the Popular Descriptions. The insertion of the names of all the Species and Varieties in this Analysis would have swelled it to ten times its present bulk.

### TREES

#### Trees grown chiefly for useful Purposes.

*Selected with reference to their Size.*

Large-sized timber trees.

*Decid.*—*Æ'*sculus Hippocástanum, 124. *Cárpinus Bétulus*, 916. *Càrya álba*, 735. *Castànea vésca*, 911. *Fàgus sylvática*, 905. *Fráxinus excélsior*, 639. *Jùglans règia*, 732. *Plánera Richárdi*, 725. *Plátanus orientàlis*, *P.* occcidentàlis, 927. *Pópulus álba*, *P.* canéscens, *P.* nìgra, *P.* canadénsis, *P.* monolífera, *P.* fastigiàta, and *P.* angulàta, 819. *Quércus pedunculàta*, *Q.* sessilifòra, *Q.* *Cérris*, *Q.* rùbra, *Q.* coccínea, and *Q.* palústris, 846. *Taxòdium dístichum*, 1077. *Tília europæ'a*, 63. *U'lmus campéstris*, *U.* montàna végeta, and other varieties or species of *U'lmus*, 715.

*Ev.*—*A'*bies excélsa, 1025. *Cèdrus Libàni*, 1057. *Pícea pectinàta*, 1036. *Pìnus sylvéstris*, *P.* Larício, *P.* Pallas*iàna*, and *P.* *Pinàster*, 950.

Middle-sized timber trees.

*Decid.*—*A'*cer *p*latanòìdes, *A.* eriocárpum, and *A.* rùbrum, 79. *A'lnus glutinòsa*, *A.* incàna, and *A.* cordifòlia, 832. *Bétula papyràcea*, 837. *Cérasus sylvéstris*, and *C.* vulgàris, 276. *O'strya vulgàris*, 919. *Pópulus balsamífera*, 819. *Pỳrus commùnis*, and *P.* torminàlis, 417. *Quércus E'sculus*, 846. Robín*ia* Pseud-*Acácia*, 233.

*Ev.*—*A'*bies álba, 1025. *I'lex Aquifòlium*, 156. *Juníperus virginiàna*, 1080. *Pícea balsàmea*, 1036. *Quércus I'lex*, 846.

Small-sized timber trees.

*Decid.*—*A'*cer tatáricum, *A.* spicàtum, *A.* striàtum, *A.* O'palus, *A.* monspessulànum, and *A.* campéstre, 79. *Cratæ'gus*, most of the species, 352. *Cydònia vulgàris*, 450. *Cýtisus Labúrnum*, and *C.* alpìnus, 213. *Euónymus europæ'us*, 149. *O'rnus europæ'a*, 651. *Pỳrus A'ria*, and *P.* aucupària, 417. *Sàlix càprea*, 744.

*Ev.*—*A'*bies nìgra, 1025. *Juníperus virginiàna*, 1080. *Táxus baccàta*, 939.

*Selected as suitable to be grown in Masses.*—*Social Trees.*

*Decid.*—*A'*cer, 79. *Cýtisus*, 213. *Làrix*, 1053. *Quércus*, 846.

*Ev.*—*A'*bies, all the species, 1025. *Cèdrus*, 1057. *Pícea*, 1036. *Pìnus*, 950. *U'lmus*, and, in short, most trees, 715.

*Selected as suitable for being grown singly, or in scattered Groups.*—*Solitary Trees.*

*Decid.*—*Æ'*sculus, 124. *Cárpinus*, 916. *Fàgus*, 905. *Sàlix*, 744.

*Ev.*—*Cupréssus sempervìrens*, 1073.

*Selected for the sake of their produce in Timber.*

Produced in a short time, with a straight trunk.

*Decid.*—*Làrix commùnis*, 1053. *Pópulus monilífera*, *P.* fastigiàta, and *P.* álba, 819. *Sàlix álba*, and *S.* Russell*iàna*, 744.

*Ev.*—*A'*bies excélsa, 1025. *Pícea pectinàta*, 1036. *Pìnus sylvéstris*, and *P.* Larício, 950.

Produced in a short time, with a branchy head.

*Decid.*—*A'*cer Pseùdo-*Plátanus*, 79. *Æ'*sculus Hippocástanum, 124. *Fàgus sylvática*, 905. *Fráxinus excélsior*, 639. *O'strya vulgàris*, 919. *Plátanus occidentàlis*, 927. *Pópulus nìgra*, *P.* canadénsis, *P.* græ'ca, and *P.* angulàta, 819. *Quércus Cérris*, 846. *Sàlix frágilis*, 744. *U'lmus montàna végeta* (the Huntingdon elm), and *U.* campéstris, 715.

*Ev.*—*Pìnus Pinàster*, *P.* sylvéstris, *P.* Larício, and *P.* Pallas*iàna*, 950.

*Selected for the Quality of the Timber to be produced.*

Soft woods.

*Decid.*—*A'*lnus, 832. *Sàlix*, 744. *Pópulus*, 819. *Æ'*sculus, 124. Liriodéndron, 36.

Hard woods.

*Decid.*—*A'*cer, 79. *Ailántus*, 145. *Bétula*, 837. *Cárpinus*, 916. *Càrya*, 735. *Castànea*, 911. *Céltis*, 727. *Fàgus*, 905. *Fráxinus*, 639. *Gleditschia*, 249. *Jùglans*, 732. *O'strya*, 919. *Plánera*, 725. *Plátanus*, 927. *Quércus*, 846. Robín*ia*, 233. *U'lmus*, 715.

Very hard, compact, and durable woods.
*Decid.*—Cérasus, 276. Cratæ'gus, 352. Cỹtisus Labúrnum, 213. *E*uónymus, 149. Prùnus, 270. Pỹrus, 417. Robín*ia*, 233.
*Ev.*—*B*úxus, 703. Cupréssus, 1073. *I*'lex, 156. Junìperus, 1080. Phillỹrea, 631. Thùja, 1068.
Resinous woods.
*Decid.*—Là̀rix, 1053.
*Ev.*—*A*'bies, 1025. Cèdrus, 1057. Pícea, 1036. Pìnus, 950.

*Selected for the character of the Head.*
For its general bulk.
*Decid.*—*A*'cer Pseùdo-Plátanus, and *A.* obtusàtum, 79. *Æ*'sculus Hippocástanum, 124. Cárpinus *B*étulus, 916. Fàgus sylvática, 905. Là̀rix europæ'a, 1053. Pópulus, most of the species, 819. Quércus Cérris, 846. Sàlix, several species, 744. Tília europæ'a, 63. *U*'lmus, most of the species, 715.
*Ev.*—Pìnus sylvéstris, *P.* Laricio, *P.* Pináster, and *P.* Pallas*iàna*, 950.
For its upright habit.
*Decid.*—*A*'lnus glutinòsa laciniàta, 832. Pópulus fastigiàta, and *P.* monilífera, 819. Quércus Cérris, 846. *U*'lmus campéstris stricta, 715.
*Ev.*—*A*'bies, 1025. Pícea, 1036. Pìnus, 950.
For its spreading habit.
*Decid.*—Castànea vésca, 911. Fàgus sylvática, 905. Fráxinus excélsior, 639. Quércus pedunculàta, 846. *U*'lmus montàna, 715.

*Selected with a view to the production of Shelter.*
For general purposes.
*Decid.*—*A*'cer Pseùdo-Plátanus, 79. Cárpinus *B*ètulus, 916. Fàgus sylvática, 905. Là̀rix europæ'a, 1053. Pópulus álba, 819. Pỹrus *A*'ria, 417. *U*'lmus montàna, 715. Pìnus sylvéstris, 950.
For drawing up young plantations.
*Decid.*—*B*étula álba, 837. Là̀rix europæ'a, 1053. Pỹrus aucupària, 417. Pópulus balsamífera, and *P.* cándicans, 819.
*Ev.*—*A*'bies excélsa, 1025. Pìnus sylvéstris, 950.
For protection from the sea breeze.
*Decid.*—*A*'cer Pseùdo-Plátanus, 79. Hippóphaë Rhamnòides, 698. Pópulus álba, Pỹrus *A*'ria, 417. Sambùcus nìgra, 513.

*Selected for the production of Shade.*
For shade in summer only.
Most deciduous species.
For shade in summer and winter.
Most evergreen species.

*Selected as adapted for particular Soil.*
For dry poor soils.
*Decid.*—*Ailántus* glandulòsa, 145. *B*étula álba, 837. Cárpinus *B*étulus, 916. Cérasus vulgàris, and *C.* sylvéstris, 276. Fàgus sylvática, 905. Gledítsch*ia* triacánthos, 249. Hippóphaë Rhamnòides, 698. Là̀rix europæ'a, 1053. Pỹrus *A*'ria, and *P.* aucupària, 417. Robín*ia*-Pseùdo *A*càcia, 233.
*Ev.*—Pìnus sylvéstris, *P.* Pináster, and *P.* austrìaca, 950.
For moist soils.
*Decid.*—*A*'cer eriocárpum, and *A.* rùbrum, 79. *A*'lnus glutinòsa, 832. Plátanus occidentàlis, 927. Pópulus, 819. Sàlix, 744.
*Ev.*—*A*'bies communis, 1025.
For peaty soils.
*Decid.*—*B*étula álba, 837. Pópulus trémula, and *P.* balsamífera, 819. Sàlix càprea, 744.
*Ev.*—*A*'bies communis, 1025.
For good deep soil.
*Decid.*—*Æ*'sculus Hippocástanum, 124. Càrya álba, 735. Castànea vésca. 911. Jùglans règia, 732. Pópulus, most of the species, 819. Quércus, most species, 846. Sàlix, 744. *U*'lmus, 715.

*Selected as adapted for particular Situations.*
On elevated surfaces.
*Decid.*—*B*étula álba, 837. Pỹrus *A*'ria, and *P.* aucupària, 417. Sambùcus nìgra, 513.
*Ev.*—Pìnus sylvéstris, and *P.* Cémbra, 950.
Sheltered by houses.
*Decid.*—*A*'cer Pseùdo-Plátanus, 79. Plátanus, 927. Pópulus fastigiàta, 819. Tília europæ'a, 63. *U*'lmus campéstris, 715.
Exposed to the sea breeze.
*Decid*—*A*'cer Pseùdo-Plátanus, 79. Hippóphaë Rhamnòides, 698. Pópulus álba, 819. Pỹrus *A*'ria, 417. Sambùcus nìgra, 513.

*Selected for being grown for special Purposes.*
For producing an immediate screen, so dense as to interrupt the view.
*Decid.*—*A*'cer Pseùdo-Plátanus, 79. *Æ*'sculus Hippocástanum, 124. Cárpinus *B*étulus, 916. Fàgus sylvática, 905. Tília europæ'a, 63. *U*'lmus campéstris and *U.* montàna, 715.
*Ev.*—*A*'bies excélsa, 1025. Pìnus sylvéstris, *P.* Laricio, and *P.* Pináster, 950.
Partially to interrupt the view.
*Decid.*—*B*étula álba, 837. Cérasus sylvéstris, 276. Fráxinus excélsior, 639. Gledítsch*ia* triacánthos, 249. Pópulus trémula and *P.* græ'ca, 819. Robín*ia* Pseud-*A*càcia, 233.
For producing timber in hedgerows.
*Decid.*—*A*'cer Pseùdo-Plátanus, 79. *Ailántus* glandulòsa, 145. Càrya álba, 735. Castànea vésca, 911. Pỹrus communis, 417. Quércus pedunculàta. *Q.* sessiliflòra, *Q.* Cérris, *Q.* rùbra, *Q.* coccínea, and *Q.* palústris, 846. *U*'lmus campéstris, 715.
For forming avenues.
*Decid.*—*A*'cer Pseùdo-Plátanus, 79. *Æ*'sculus Hippocástanum, 124. Cárpinus *B*étulus 916. Càrya álba, 735. Castànea vesca, 911. Cérasus sylvéstris, and *C.* vulgàris, 276. Fàgus sylvática, 905. Jùglans règia, 732. Là̀rix europæ'a, 1053 Plátanus orientàlis, and *P.* occidentàlis, 927. Pópulus, most of the species, 819. Pỹrus communis, and *P.* Málus, 417. Quércus, many of the species, 846 Robín*ia* Pseùd-*A*càcia. 233. *U*'lmus, most of the species, 715.

*Ev.*—*A*bies excélsa, 1025. *C*èdrus Libàni, 1057. *P*ìcea pectinàta, 1036. *P*ìnus sylvéstris, *P.* Larício, *P.* Pallas*iàna*, *P. P*ináster, &c., 950. *T*áxus baccàta, 939.

For forming lofty hedges.

*Decid.* — *A*cer campéstre, 79. *B*étula álba, 837. *C*árpinus *B*étulus, 916. *F*águs sylvática, 905. *L*àrix europæ'a, 1053. *O*'strya vulgàris, 919. *P*ópulus fastigiàta, 819. *T*ìlia europæ'a, 63. *U*'lmus campéstris, 715.

*Ev.* — *A*bies excélsa, 1025. *I*'lex *A*quifòlium, 156. *J*uníperus virginiàna, 1080. *P*ìcea pectinàta, 1036. *Q*uércus *I*'lex, 846. *T*áxus baccàta, 939.

For being periodically cut down as coppice-wood, but not in the shade of other trees.

*Decid.* — *B*étula álba, 837. *C*astànea vésca, 911. *F*ráxinus excélsior, 639. *Q*uércus pedunculàta and sessilifiòra, 846.

For being periodically cut down as coppice-wood, in the shade of other trees.

*Ev.* — *C*érasus Laurocérasus, 276. *B*úxus sempervìrens, 703. *I*'lex *A*quifòlium, 156. *J*uníperus, 1080. *Q*uércus *I*'lex, 846. *T*áxus baccàta, 939

*Selected in part for their produce in Fruits or Seeds.*

Used in various arts and manufactures.

*Decid.* — *Æ*'sculus, 124. *F*àgus, 905. *Q*uércus, 846.

Used in household economy.

*Decid.* — *C*ärya, 735. *C*astànea, 911. *C*érasus sylvéstris, and *C.* vulgàris, 276. *J*ùglans, 732. *M*éspilus, 416. *M*òrus, 705. *P*rùnus, 270. *P*ỳrus, 417.

As food for singing-birds, game, or wild animals.

*Decid.* — *C*ratæ'gus, 352. *P*ỳrus aucupària, 417. *I*'lex *A*quifòlium, 156.

*Selected in part for their produce in Bark.*

For the tanner.

*Decid.*—*B*étula álba, 837. *C*astànea vésca, 911. *L*àrix europæ'a, 1053. *P*ỳrus aucupària, 417. *Q*uércus pedunculàta, and *Q.* sessilifiòra, 846. *S*àlix, various species, 744.

For other arts.

*Ev.* — *I*'lex *A*quifòlium, 156. *T*ìlia europæ'a, 63.

*Selected in part for the use of their Leaves.*

As substitutes for spent tan in gardens.

*Decid.*— *Q*uércus, 846, *C*astànea, 911.

As producing, by decomposition, leaf-mould.

All trees, especially the broad-leaved kinds.

As winter food for cattle.

*Decid.*—*B*étula, 837. *M*òrus, 715. *P*ópulus, 819. *P*ỳrus, 417. Robín*ia*, 233. *S*àlix, 744. *T*ìlia, 63. *U*'lmus, 715.

## Trees grown chiefly for Ornamental Purposes.

*Selected with reference to their Bulk.*

Large-sized ornamental trees.

*Decid.* — *A*cer *p*lataníides. *A.* eriocárpum, and *A.* rùbrum, 79. *Æ*'sculus Hippocástanum, 124. *Ailántus* glandulòsa, 145. *A*'lnus glutinòsa laciniàta. *A.* incàna, and *A.* cordifòlia, 832. *B*étula *p*opulifòlia, and *B.* nìgra, 837. *C*éltis austràlis, 727. *F*águs sylvática purpùrea, 905. *F*ráxinus americàna, 639. Liriodéndron Tulipífera, 36. *O*'strya vulgàris, 919. *P*látanus orientàlis, 927. *Q*uércus *C*érris fulhaménsis, and *Q. C.* Lucombe*àna*, 846. Robín*ia* Pseùd-*A*càcia, 233. *T*axòdium distíchum, 1077.

*Ev.* — *A*bies, 1025. *C*èdrus, 1057. *P*ìcea, 1036. *P*ìnus, 950.

Middle-sized ornamental trees.

*Decid.* — *A*cer, 79. *C*órylus, 921. Gleditsch*ia*, 249. Liquidámbar, 932. Magnòl*ia* acuminàta, 21. *M*òrus álba, 705. *Negúndo*, 122. *O*'rnus, 651. *O*'strya, 919. *P*àv*ia*, 128. *P*ópulus, 819. *P*ỳrus, 417. Robín*ia*, 233. Salisbùr*ia*, 944. *S*àlix, 744. *T*ìlia, 63.

*Ev.* — *A*bies, 1025. *C*upréssus, 1073. *J*uníperus, 1080. *P*ìcea, 1036. *P*ìnus, 950. *Q*uércus, 846. *T*áxus, 939, &c.

Small-sized ornamental trees.

*Decid.* — *A*cer, 79. *A*mygdalus, 261. *A*rmenìaca, 267. Broussonèt*ia*, 710. *Catálpa*, 662. *C*érasus, 276. *C*ratæ'gus, 352. *C*ydònia, 450. *C*ýtisus, 213. *D*iospỳros, 625. *E*leægnus, 696. *E*uónymus, 149. Gleditsch*ia*, 249. Halès*ia*, 620. *H*ippóphaë, 698. Kölreutèr*ia*, 134. Liquidámbar, 932. Magnòl*ia*, 21. *M*éspilus, 414. *M*òrus, 705. *P*àv*ia*, 128. *P*ersica, 265. *P*rùnus, 270. *P*ỳrus, 417. *Q*uércus, 846. *R*hámnus, 170. Robín*ia*, 233. *S*àlix, 744. Virgìl*ia*, 197. *X*anthóxylum, 142.

*Ev.* — *C*érasus lusitánica, 276. *C*upréssus, 1073. *I*'lex, 156. *J*uníperus, 1080. *L*aúrus, 681. *P*ìcea, 1036. *P*ìnus, 950. *Q*uércus, 846. *T*áxus, 939. *T*hùja, 1068.

*Selected with reference to their Form.*

With upright oblong or globose heads.

*Decid.* — *A*cer obtusàtum, 79. *Æ*'sculus Hippocastanum, 124. *A*'lnus, 832. *C*érasus, 276. *F*águs, 905. *P*ópulus, 819. *P*ỳrus *A*'ria, and *P.* aucupària, 417. *Q*uércus *C*érris, 846. *U*'lmus, 715.

With spreading heads.

*Decid.* — *A*rmenìaca, 267. *C*ratæ'gus Crús-gálli, 352. *D*iospỳros, 625. *M*éspilus, 414. *P*ersica, 265.

With conical heads.

*Decid.* — *L*àrix, 1053. Taxòdium, 1077.

*Ev.* — *A*bies, 1025. *C*èdrus, 1057. *C*upréssus sempervìrens, 1073. *J*uníperus, 1080. *P*ìcea, 1036. *P*ìnus, 950. *T*hùja, 1068.

With spiry heads.

*Decid.* — *C*ratæ'gus *O*xyacántha strícta, 352. *P*ópulus fastigiàta, 819. *Q*uércus pedunculàta fastigiàta, 846.

*Ev.* — *T*áxus baccàta fastigiàta, 939.

*Selected with reference to their Mode of Growth.*

With pendent shoots and branches.

*Decid.* — *B*étula álba péndula, 837. *C*érasus semperflòrens, 276. *C*ratæ'gus *O*xyacántha reglnæ, 352. *C*ýtisus *L*abúrnum péndulum, 213. *F*águs sylvática péndula, 905.

*Fr*áxinus excélsior péndula, and *F. l*entiscifòlia péndula, 639. *L*àrix europæ'a péndula, 1053. Pà*via* rùbra péndula, 128. *P*ópulus trémula péndula, 819. *Q*uércus pedunculàta, 846. *S*àlix babylónica, 744. Taxòdium dístichum péndulum, 1077. *U'*lmus montàna péndula, 715.

*Ev.* — *C*úpressus péndula, 1073. *I'*lex *A*quifòlium, T*e*péndulum (both rare), 156. Juníperus recúrva, 1080.

With vertical shoots and branches.

*Decid.* — *C*àrpinus *B*étulus, 916. *F*àgus sylvática, 905. Gymnócladus canadénsis, 255. *P*ỳrus *A'*ria, and *P.* aucupària, 417. *U'*lmus montàna fastigiàta, 715; and the other fastigiate or spiry-headed trees enumerated above.

With horizontal shoots and branches.

*Decid.* — *A'*lnus glutinòsa laciniàta, 832. *C*ratæ'gus Crús-gálli, 352. *D*iospỳros *L*òtus, 625. Robín*ia* P*s*eùd-*A*càcia, R. umbraculífera, 233. Taxòdium dístichum, 1077. *U'*lmus montàna péndula, 715.

*Ev.* — *A'*bies, 1025. *C*èdrus, 1057. *P*ícea, 1036. *P*ìnus, 950.

*Selected with reference to their Foliage.*

Duration.

Deciduous ornamental trees.

Developed early in spring.

*Decid.* — *A'*cer Pseùdo-*P*látanus, and *A.* tatáricum, 79. *C*ratæ'gus nìgra, and *C. O*xyacántha præ'cox, 352. *P*ópulus balsamífera, 819. *S*ambùcus nìgra, 513. *T*ìlia europæ'a, 63. *U'*lmus campéstris, 715.

Developed late.

*Decid.* — *Ailántus* glandulòsa, 145. *C*àrya, 735. *Catálpa*, 662. *F*ráxinus, 639. Gledítsch*ia*, 249. Gymnócladus, 255. *J*ùglans, 732. *P*ỳrus *A'*ria, and *P.* vestìta, 417. *Q*uércus *Taúxin*, 846. Virgília lùtea, 197.

Dropping early.

*Decid.* — *A'*cer Pseùdo-*P*látanus, 79. *Æ'*sculus Hippocástanum, 124. *F*ráxinus excélsior, 639. Pà*via*, 128. *P*ópulus, 819. Robín*ia*, 233. *T*ìlia, 63.

Dropping late.

*Decid.* — *A'*cer campéstre, and *A.* créticum, 79. *C*árpinus *B*étulus, 916. *C*ratæ'gus Crús-gálli, 352. *F*àgus sylvática, 905. Liquidámbar imbérbe, 932. Plánera Richárd*i*, 725. *Q*uércus, 846.

Persistent, often remaining on in a withered state till spring.

*Decid.* — *C*árpinus *B*étulus, 916. *F*àgus sylvática, 905. Liquidámbar imbérbe, 932. *Q*uércus *C*érris, and *Q. Taúxin*, 846.

Evergreen ornamental trees.

*A'*bies, 1025. *C*èdrus, 1057. *C*érasus lusitánica, 276. *C*upréssus, 1073. *I'*lex *A*quifòlium, 156. Juníperus, 1080. *L*aúrus nóbilis, 681. Magnòl*ia* grandiflòra, 21. *P*ícea, 1036. *P*ìnus, 950. *Q*uércus *I'*lex, 846. *T*áxus, 939. *T*hùja, 1068.

Subevergreen ornamental trees.

*C*ratæ'gus Crús-gálli, and *C.* mexicàna, 352. Magnòl*ia* Thompson*iàna*, 21. *P*ỳrus coronària, 417. *Q*uércus *C*érris fulhamènsis, *Q. C*érris Lucombe*àna*, *Q.* hýbrida nàna and *Q.* Túrner*i*, 846.

Form and character.

Simple leaves.

Large.

*Decid.*—*A'*cer macrophýllum, 79. *C*astànea vésca, 911. *Catálpa syringæ*fòlia, 662. Magnòl*ia* macrophýlla, M. tripétala, and M. acuminàta, 21. *P*látanus, 927. *P*ópulus heterophýlla, 819. *P*ỳrus vestìta, 417. *Q*uércus sessiliflòra, and *Q.* nìgra, 846. *U'*lmus montana, 715.

*Ev.* — Magnòl*ia* grandiflòra, 21.

Small.

*Decid.* — *A'*cer créticum, 79. *C*ratæ'gus *O*xyacántha, 352. *E*uónymus europæ'us, 149. *P*rùnus spinòsa, 270. *U'*lmus chinénsis, 715.

Linear, or needle-like.

*Decid.* — *L*àrix, 1053. Taxòdium, 1077.

*Ev.* — *A'*bies, 1025. *C*èdrus, 1057. *C*upréssus, 1073. *J*uníperus, 1080. *P*ícea, 1036. *P*ìnus, 950. *T*áxus, 939. *T*hùja, 1068.

Compound leaves.

Large.

*Decid.* — *Ailántus*, 1145. *C*àrya. 735. Gledítsch*ia*, 249. Gymnócladus, 255. *J*ùglans, 732. Kölreutèr*ia*, 134. *F*ráxinus, 639. Virgíli*a*, 197.

Small.

*Decid.* — *Æ'*sculus, 124. *C*ýtisus, 213. *O'*rnus, 651. *Negúndo*, 122. Pà*via*, 128. *P*tèlea, 143.

Colour.

In deciduous trees in early summer.

Light, or yellowish, green.

*Decid.* — *A'*cer Pseùdo-*P*látanus lutéscens, and *A. p*latanòides, 79. *Catálpa syringæ*fòlia, 662. Kölreutèr*ia*, 134. Maclùr*a*, 711. *Negúndo*, 122 *P*ópulus balsamífera, 819.

*Ev.* — *Q*uércus pedunculàta, and *Q.* sessiliflòra, 846. *S*àlix, 744. *T*ìlia, 63. Virgíli*a*, 197.

Dark green.

*Decid.* — *A'*lnus, 832. *C*astànea, 911. *C*éltis, 727. *E*uónymus, 149. Liquidámbar, 932. Pà*via*, 128. *P*rùnus, 270.

Purple.

*Decid.* — *A'*cer Pseùdo-*P*látanus purpuráscens, 79. *F*àgus sylvática purpùrea, 905. *Q*uércus pedunculàta purpuráscens, 846.

Variegated.

*Decid.* —*A'*cer platanòides variegàtum, and *A.* Pseùdo-*P*látanus variegàta, 86. *C*astànea vésca variegàta, 912. *F*ráxinus heterophýlla variegàta, 639. *Q*uércus pedunculàta variegàta and *Q. C*érris variegàta, 846. *U'*lmus campéstris variegàta, 715.

In deciduous trees in autumn before falling off.
Red or purple.
*Decid.* — *A*'cer rùbrum, 79. Liquidámbar, 932. Magnòl*ia* auriculàta, 21. *Q*uércus rùbra, *Q*. nìgra, *Q*. tinctòria, and *Q*. palústris, 846.
Yellow.
*Decid.* — *A*'cer platanòìdes, and *A*. sacchárinum, 79. *Bé*tula álba, 837. *F*ráxinus excélsior, 639. Kölreutèr*ia*, 134. *L*ârix, 1053. Liriodéndron, 36. Maclùr*a*, 711. *Negúndo*, 122. *P*ópulus nìgra, and *P*. canadénsis, 819. *P*tèlea trifoliàta, 143. *P*ỳrus vestìta, 417. Salisbùr*ia*, 844. Virgìl*ia*, 197.
Green, or without changing colour.
*Decid.* — *A*'lnus, 832. *C*éltis, 727. *C*ratæ'gus Crús-gálli, and *C*. mexicàna, 352. *D*iospỳros, 625. *P*ỳrus coronària, 417.
Brown, or without bright colour.
*Decid.* — *A*'cer Pseùdo-*P*látanus, 79. *Ailántus*, 145. *C*ârya, 735. *J*ùglans, 1080. *P*ópulus græ'ca, *P*. trémula, and *P*. balsamífera, 819
In evergreens.
Light green.
*C*èdrus *Deodàra*, 1057. *C*upréssus *th*yòìdes, and *C*. lusitánica, 1073. *J*uníperus, 1080. Magnòl*ia* grandifiòra, 21. *Th*ùja, 1068.
Dark green.
*A*'bies excélsa nìgra, 1025. *C*érasus lusitánica, 276. *C*upréssus, 1073. *I*lex, 156. *J*uníperus, 1080. *L*aúrus nóbilis, 681. *P*ìcea, 1036. *P*ìnus, 950. *Q*uércus *I*'lex, 846. *T*áxus, 939.
Variegated.
*A*'bies excélsa variegàta, 1025. *C*upréssus *th*yòìdes variegàta, 1073. *I*lex *A*quifòlium variegàtum, 156. *P*ìnus *P*ináster variegàta, 961. *Q*uércus *I*'lex variegàta, 846. *T*áxus baccàta variegàta, 939.
Fragrant leaves.
*Decid.* — *B*étula, 837. *J*ùglans, 732. Liquidámbar, 932. *S*âlix pentándra, 744.
*Ev.* — *A*'bies, 1025. *J*uníperus, 1080. *L*aúrus, 681. *P*ìcea, 1036. *P*ìnus, 950. *Th*ùja, 1068.

*Selected with reference to their Flowers.*
Produced in spring.
Red or purple.
*Decid.* — *A*'cer rùbrum, 79. *A*mýgdalus, 261. *C*ratæ'gus *O*xyacántha *r*ôsea, and *C. O*. punícea, 352. Pàv*ia* rùbra, 128. *P*ersica, 265.
Yellow.
*Decid.* — *A*'cer platanòìdes, and *A*. monspessulànum, 79. *Cỳ*tisus *L*abúrnum, and *C*. alpìnus, 213. *S*âlix, 744. Xanthóxylum, 142.
White.
*Decid.* — *A*rmenìaca, 267. *C*érasus, 276. *C*ratæ'gus, 352. Magnòl*ia* conspícua, 21 *P*rùnus, 270. *P*ỳrus, 417. Staphylèa, 147.
Variegated.
*Decid.* — *Æ*'sculus, 124. Pàv*ia*, 128. *P*ỳrus *M*âlus, *P*. coronària, and *P*. spectabilis, 417. Robìn*ia* viscòsa, 233.
In summer.
Red or purple.
*Decid.* — Robìn*ia* hìspida, 233.
Yellow or orange.
*Decid.* — Kölreutèr*ia*, 134. Virgìl*ia* lùtea, 197.
White or whitish.
*Decid.* — *C*ratæ'gus cordàta, and *C*. mexicàna, 352. Halès*ia* tetráptera, 620. Liriodéndron, 36. Magnòl*ia*, 21. *M*éspilus, 414. Robìn*ia* Pseùd-*A*cácia, 233.
Variegated.
*Decid.* — *Catálpa*, 662.

*Selected with reference to their Fruit or Seed.*
Large and showy.
*Decid.* — *A*rmenìaca vulgàris, 267. *C*ydònia vulgàris, 450. Maclùr*a* aurantìaca, 711. *P*ersica vulgàris, 265. *P*rùnus domèstica, 270. *P*ỳrus commùnis, *P*. *M*âlus, and *P*. *M*. astracánica, 417.
Small, but conspicuous from colour and quantity.
*Decid.* — *C*éltis, 727. *C*érasus, 276. *C*ratæ'gus, 352. *H*ippóphaë, 698. *P*ỳrus *M*âlus *p*runifòlia, *P*. *M*. baccàta, *P*. *A*'ria, *P*. intermèdia, *P*. torminàlis, *P*. auriculàta, *P*. aucupària, and *P*. americàna, 417. *R*hámnus cathárticus, and *R*. frángula, 170.
*Ev.* — *I*'lex *A*quifòlium, 156. *J*uníperus, 1080. *L*aúrus, 681.
Singular in form or character.
*Decid.* — *E*uónymus, 149. Liquidámbar, 932. Magnòl*ia*, 21. *P*látanus, 927. *Q*uércus *C*érris, and *Q*. *Æ*'gilops, 846.

## SHRUBS.

### Shrubs grown chiefly for useful Purposes.

*Selected as adapted for Coppice-Woods.*
*Decid.* — *C*ôrnus sanguìnea, and *C*. álba, 501. *C*órylus *A*vellàna, 921. *L*ígústrum vulgàre, 628. *S*âlix càprea, 744.

*Selected as adapted for producing Shelter for Game.*
*Decid.* — Genìsta, 203. *R*ibes, 468. Spiræ'a, 299. Symphoricárpos, 541. *V*ibúrnum, 516.
*Ev.* — *B*úxus, 703. Gaulthèr*ia*, 579. *H*ypéricum, 74. *J*uníperus, 1080. Mahòn*ia*, 50. *R*hododéndron, 583. *U*'lex, 199. *V*accínium, 604.

*Selected as adapted for Hedges.*
*Decid.* — *B*érberis, 42. *Cỳ*tisus *s*copàrius, 213. *H*ippóphaë, 698. *L*ígústrum, 628. *P*aliùrus, 168. *R*ôsa, 321. *Syrínga*, 635.
*Ev.* — *B*úxus, 703. *I*'lex, 156. *J*uníperus, 1080. *P*hillýrca, 631. *U*'lex, 199.

### Shrubs grown chiefly for ornamental Purposes.

*Selected with reference to their Bulk.*

Large-sized shrubs.

*Decid.* — *B*áccharis, 546. *Bérberis*, 42. Bòr*ya*, 713. Búddle*a*, 670. *Caragàna*, 237. *C*olùtea, 244. *C*órnus, 501. Cotoneáster, 405. *E*uónymus, 149. Fontanès*ia*, 638. Halimodéndron, 242. *H*amamèlis, 499. *H*ippóphaë, 698. *L*igústrum, 628. *P*alìùrus, 168. *P*hiladélphus, 460. Piptánthus, 198. *R*hús, 186. *Ribes*, 468. *S*ambùcus, 513. Shephérd*ia*, 700. *S*pártium, 202. *Syringa*, 635. *V*ibúrnum, 516.

*Ev.* — *A*'rbutus, 573. *B*úxus, 703. *I*'lex, 156. Juníperus, 1080. *L*aúrus, 681. *P*hillýrea, 631.

Middle-sized shrubs.

*Decid.* — Amórpha, 230. *Bérberis*, 42. Calóphaca, 243. Calycánthus, 452. *C*eanòthus, 180. Cephalánthus, 544. Chimonánthus, 454. *C*lèthra, 581. *C*ydònia, 450. Deùtz*ia*, 465. *H*ibíscus, 62. Leycestèr*ia*, 543. Potentílla, 319. *R*hododéndron, 583. *R*hús, 186. *Ribes*, 468. *R*òsa, 321. *S*piræ'a, 299. Staphylèa, 147. Symphoricárpos, 541. *Syringa*, 635.

*Ev.* — *A*úcuba, 511. *B*upleùrum, 495. Gárr*ya*, 926. Juníperus, 1080. Mahòn*ia*, 50. *P*rìnos, 163. *R*hododéndron, 583. *U*'lex, 199. *V*ibúrnum *T*ìnus, 516.

Small shrubs.

*Decid.* — *A*mýgdalus nàna, 261. *A*androsæ'mum, 77. *A*rtemís*ia*, 549. *A*trapháxis, 679. *B*étula nàna, 837. *C*ístus, 54. Comptòn*ia*, 936. *C*oriària, 146. Coronílla, 247. *D*áphne, 686. Dîrca, 692. Fothergílla, 500. *G*enísta, 203. Hydrángea, 492. *H*ypéricum, 74. *I*'tea, 489. Jasmìnum, 654. *M*yrìca, 934. Nitrària, 467. *O*nònis, 229. *P*æòn*ia*, 18. Potentílla, 319. *R*hododéndron, 583. *Ribes*, 468. *S*piræ'a, 299. *V*accínium, 604. *V*élla, 53. Xanthorhìza, 19.

*Ev.* — Andrómeda, 560. *B*upleùrum, 495. Cassándr*a*, 562. Cotoneáster microphýlla, 405. *D*áphne, 686. *E*phèdra, 937. Kálm*ia*, 598. *L*èdum, 602. Leiophýllum, 602. Leucóthoë, 568. Lyòn*ia*, 564. Mahòn*ia*, 50. Pernéttya, 578. *R*hododéndron, 583. *V*accínium, 604. *Yúcca*, 1101. Zenòbi*a*, 563.

Under-shrubs.

*Decid.* — *A*rctostáphylos alpìna, 577. *A*rtemís*ia*, 549. *O*nònis, 229. Phalerocárpus, 581.

*Ev.* — *A*rctostáphylos U'va úrsi, 577. Azàlea procúmbens, 601. Callùna, 559. Corèma, 1092. Dabœ'*cia*, 572. Epigæ'a, 580. *E*rica, 555. Gaulthèr*ia*, 579. Gypsocállis, 557. *L*èdum, 602. Leiophýllum, 602. *O*xycóccus, 615. Pernéttya, 578. Phylló*doce*, 570. *R*úscus, 1099. Santolìna, 548.

*Selected with reference to their Form as Bushes.*

With compact roundish heads.

*Decid.* — *A*rtemís*ia*, 549. *Bérberis* sinénsis, 42. *B*étula nàna, 837. Calycánthus, 452. Cephalánthus, 544. Coronílla, 247. *C*ýtisus, 213. *D*áphne *Mezèreum*, 686. *G*enísta, 203. *H*ypéricum, 74. *L*igústrum, 628. Potentílla, 319. *R*hododéndron, 583. *Ribes*, 468. *S*piræ'a, 299. Symphoricárpos, 541. *Syringa*, 635.

*Ev.* — *A*úcuba, 511. *B*upleùrum, 495. *B*úxus, 703. *D*áphne, 686. *H*ypéricum Kalmi*ánum*, 74. Mahòn*ia*, 50. *P*hillýrea, 631. *R*hododéndron, 583. *U*'lex, 199. *V*ibúrnum *T*ìnus, 604.

With open, rather irregular, heads.

*Decid.* — Amórpha, 230. *B*áccharis, 546. Búddle*a*, 670. *C*olùtea, 244. Cotoneáster, 405. *P*hiladélphus, 460. Piptánthus, 198. *R*hús, 186.

With conical or pointed heads.

*Ev.* — *C*upréssus, 1073. *I*'lex, 156. Juníperus, 1080. *U*'lex stricta, 199.

*Selected with reference to their Mode of Growth.*

Bushes with upright shoots and branches.

*Decid.* — *Caragàna*, 237. *C*órnus (*a.*) stricta, 501. *H*ibíscus, 62. Jasmìnum frùticans, 654. Kérr*ia*, 298. Leycestèr*ia*, 543. *P*hiladélphus, 460. *S*pártium, 202. *S*piræ'a, 299. *T*ámarix, 458. Myricària, 459.

*Ev.* — Juníperus c. suécica, 1081. *U*'lex e. stricta, 199. *T*áxus b. stricta, 939. *T*hùja o. stricta, 1068.

Bushes with pendent shoots and branches.

Climbers.

By tendrils, or grasping fibrils.

*Decid.* — Ampelópsis, 139. *A*trágene, 16. *C*lématis, 2. *R*hús radìcans, 186. *Técoma*, 661. *V*itis, 136.

*Ev.* — Bignòn*ia*, 660. *H*èdera, 497. *S*mìlax, 1093.

By twining stems.

*Decid.* — *A*ristolòchia, 701. Berchèm*ia*, 169. *C*elástrus, 154. Lonícer*a*, 526. *M*enispérmum, 39. Periploca, 658. Wistàr*ia*, 248.

*Ev.* — Lonícera, 526.

By elongated slender stems.

*Decid.* — Jasmìnum officinàle, 654. *L*ýcium europæ'um, 665. *R*òsa, numerous sorts, 321. *R*ùbus, 311. *S*olànum Dulcamàra, 663.

*Ev.* — *R*òsa, several sorts, 321.

Trailers; the branches prostrate, but not generally rooting.

*Decid.* — *A*rctostáphylos alpìna, 577. Decumària bárbara, 466. *Ribes* prostràtum, 468. *R*ùbus, 311.

*Ev.* — *A*rctostáphylos U'va úrsi, 577. Azàlea procúmbens, 601. Cotoneáster microphýlla, 405. Gaulthèr*ia*, 519. Juníperus *S*abìna prostràta, 1080. *V*ìnca, 657.

Creepers; the branches prostrate and rooting.

*Decid.* — *R*hús, 186. *R*ùbus, 311.

*Ev.* — Epigæ'a rèpens, 580. Mahòn*ia* rèpens, 50. *O*xycóccus, 615.

*Selected with reference to their Foliage.*

Duration.

Deciduous.

Developed early in spring.

*Decid.* — *C*rataæ'gus, 352. *E*uónymus, 149. *H*ypéricum, 74. *L*igústrum, 628. *Ribes*, 468. *R*òsa, 321. *S*ambùcus, 513. *S*piræ'a, 299. *Syringa*, 635.

Developed late.

*Decid.* — Aràlia, 496. *C*alycánthus, 452. Cephalánthus, 544. *H*ibíscus, 62. *P*alìùrus, 168. *Técoma*, 661.

Persisting; remaining on in a withered state.
*Decid.* — *Genista*, 203. *Hypéricum*, 74. *Juniperus recúrva*, 1080. *Onònis*, 229. Potentílla, 319.
Evergreen leaves.
Andròmeda, 560. *A'rbutus*, 573. *Arctostáphylos*, 577. *Aúcuba*, 511. Azàlea, 601. *Bérberis*, 42. *Búxus*, 703. Callùna, 559. Cassándra, 562. *Cérasus*, 276. Corèma, 1092. Cotoneáster, 405. Dahœ'cia, 572. *Dáphne*, 686. *E'mpetrum*, 1091. *E'phedra*, 937. Epigæ'a, 580. *Erica*, 555. *Gárrya*, 926. Gaulthèria, 579. Gypsocállis, 557. *Hypéricum*, 74. *I'lex*, 156. Juníperus, 1080. Kálmia, 598. *Lèdum*, 602. Leiophýllum, 602. Leucóthoe, 568. Lyònia, 564. Mahònia, 50. Pernéttya, 578. *Phillýrea*, 631. Phyllódoce, 570. *Prinos*, 163. *Rhâmnus*, 170. *Rhododéndron*, 583. *Ròsa*, 321. *Rosmarinus*, 672. *Rúscus*, 1099. *Santolina*, 548. *Táxus*, 939. *Thùja*, 1068. *U'lex*, 199. *Vaccínium*, 604. *Vibúrnum*, 516. *Yúcca*, 1101. Zenòbia, 563.
Evergreen, from the colour of the shoots.
*Decid.* — Collètia, 178. *Cýtisus scopàrius*, 213. *E'phedra*, 937. *Genista*, 203. Jasmìnum officinàle, 654. *Spártium*, 202. *U'lex*, 19.
Subevergreen.
Aristotèlia, 182. *Bérberis* asiática, 42. *Cístus*, 54. *Cýtisus hirsùtus*, and *C. capitàtus*, 213. Leycestèria, 543. *Ligústrum* vulgàre sempervìrens, 628. Photinia serrulàta, 403. *Ròsa*, 321. *Vélla*, 53.

Form and character.
Simple.
Large.
*Decid.* — Calycánthus, 452. Chimonánthus, 454. *Córnus*, 501. Cotoneáster, 405. *Euónymus latifòlius*, 149. *Hamamèlis*, 499. *Hibíscus*, 62. Hydrángea, 492. Leycestèria, 543. *Philadélphus*, 460. Photinia, 403. *Rhododéndron*, 583. *Rhús*, 186. *Ribes*, 468. *Spiræ'a*, 299. *Syringa*, 635. *Vibúrnum*, 516.
*Ev.* — *Aúcuba*, 511. Cérasus Laurocérasus, and *C. lusitánica*, 276. *Gárrya*, 926. Gaulthèria *Shállon*, 579. Kálmia latifòlia, 598. *Rhododéndron*, 583. *I'lex*, 156. *Yúcca* gloriòsa, 1101.
Small or narrow.
*Decid.* — *Amýgdalus*, 261. *Arctostáphylos*, 577. *Atrapháxis*, 679. *Bérberis*, 42. *Bétula* nàna, 837. *Bórya*, 713. *Cístus*, 54. Comptònia, 936. *Coriária*, 146. *Cydònia*, 450. *Dáphne*, 686. Fontanèsia, 638. Helianthemum, 58. *Hippóphaë*, 698. *I'tea*, 489. *Ligústrum*, 628. Nitrária, 467. Shephérdia, 700.
*Ev.* — *A'rbutus*, 573. *Bérberis dúlcis*, 42. *Búxus*, 703. Cotoneáster, 405. *Dáphne*, 686. *Hypéricum* Kalmiànum 74. *Lèdum latifòlium*, 602. Leucóthoe, 568. Lyònia, 564. *Phillýrea*, 631. *Prinos*, 163. *Rhododéndron*, 583. *Ruscus*, 1099. *Vaccínium*, 604. *Yúcca* filamentòsa angustifòlia, 1101.
Linear, heath-like, or needle-like.
*Decid.* — *Hypéricum* serpyllifòlium, 74. Myricària germánica, 459. Phalerocárpus serpyllifòlia, 581. Phyllódoce *empetriformis*, 570. *Támarix* gállica, 458.
*Ev.* — Andrómeda, 560. Azalea, 601. Callùna, 559. Corèma, 1092 Dahœ'cia, 572. *E'mpetrum*, 1091. *Erica*, 555. Gypsocállis, 557. Juníperus 1080. Leiophýllum, 602. *Rosmarinus*, 672.
Compound.
Large.
*Decid.* — Amórpha, 230. Aràlia, 496. Colùtea, 244. *Pæònia*, 18. *Rhús* typhìna, 186. *Ròsa*, 321. *Sambùcus*, 513. Staphylèa, 147.
*Ev.* — Mahònia, 50. *Ròsa*, 321.
Small.
*Decid.* — Calóphaca, 243. *Caragàna*, 237. Coronílla, 247. *Cýtisus*, 213. *Genista*, 203. Halimodéndron, 242. Jasminum, 654 *Onònis*, 229. Potentílla, 319. Xanthorhìza, 19.

Colour.
In deciduous shrubs when first developed, or in early summer.
Light, or yellowish, green.
*Decid.* — *Caragàna*, 237. *Cýtisus*, 213. Dírca, 692. *Genista*, 203. *Hypéricum*, 74. Xanthorhìza, 19.
Glaucous green.
*Decid.* — Artemísia, 549. *Báccharis*, 546. *Bupleùrum*, 495. Colùtea, 244 *Elaéagnus*, 696. Halimodéndron, 242. *Hippóphaë*, 698. Myricària, 459 *Ribes* cèreum, and *R.* trifòrum níveum, 468. Santolina, 548. Shephérdia 700. *Támarix*, 458.
*Ev.* — *Yúcca*, 1101. Zenòbia pulverulénta, 563.
Purple.
*Decid.* — *Córylus Avellàna* purpùrea, 921. *Bérberis* vulgàris purpùrea, 42.
Variegated.
*Decid.* — Aristotèlia, 182. *Hibíscus*, 62. *Jasminum*, 654. *Ligústrum*, 628. *Philadélphus*, 460. *Rùbus*, 311. *Sambùcus*, 513. *Solànum* Dulcamàra 663.
*Ev.* — *Aúcuba*, 511. *Búxus*, 703. *Hédera*, 497. *I'lex*, 156. *Rhododéndron*, 583. *Rhâmnus Alatérnus*, 170. *Táxus*, 939. *Vibúrnum Tinus*, 516. *Vínca*, 657. *Yúcca* gloriòsa variegàta, 1101.
In shrubs in autumn before falling off.
Red.
*Decid.* — Ampelópsis, 139. *Bérberis*, 42. *Cornus*, 501. *Euónymus*, 149. Photinia, 403. *Pùnica*, 456. *Rhododéndron*, 583. *Rhús* typhìna, 186. *Vaccínium*, 604. *Vitis* vinífera fòliis rubescéntibus, 136.
Yellow.
*Decid.* — Aristolòchia, 701. *Bérberis*, 42. Bignònia, 660. Búddlea, 670. *Caragàna*, 237. Chimonánthus, 454. *Cýtisus*, 213. *Genista*, 203. *Hypéricum*, 74. *Rhús Cótinus*, 186. *Ribes*, 468. *Técoma*, 661.

Green, or without changing colour.
*Decid.* — *B*upleùrum, 495. Hydrángea, 492. *L*ígústrum vulgàre semper·vìrens, 628. *R*ùbus, 311. *S*pártium, 202. *U*`lex, 199.
Brown, or without bright colours.
*Decid.* — *Pæ*òn*ia*, 18. Potentílla, 319. *R*ùbus, 311. *S*piræ`a, 299.
Fragrant leaves.
*Decid.* — *A*rtemís*ia*, 549. *H*ypéricum, 74. *J*uníperus, 1080. *M*yrìca, 934. *R*hús aromática, 186. *Ribes* nìgra, 468. *R*òsa rubiginòsa, 321. *R*osmarìnus, 672. *S*ambùcus, 513. *S*antolìna, 548. *S*olànum, 663.
*Ev.* — *J*uníperus, 1080. *L*aúrus, 681.

*Selected with reference to their Flowers.*
Produced in early spring.
Red, blue, or purple.
*Decid.* — *A*mýgdalus nàna, 261. *C*ydònia japónica, 450. *D*áphne *Mezèreum*, 686. *R*hododéndron dàùricum, 583. *Ribes* sanguíneum, 468.
*Ev.* — Gypsocállis, 557 *R*hododéndron dàùricum atrovìrens, 583.
Yellow or orange.
*Decid.* — *Caragàna*, 237. Chimonánthus, 454. *C*órnus más, 501. *K*ér*ria* japónica, 298. *Ribes* aúreum, 668.
*Ev.* — *D*áphne Mahòn*ia*, 50. *U*`lex europæ`a, 199.
White or whitish.
*Decid.* — Cotoneáster, 405. Magnòl*ia* conspícua, 21. *Ribes* cèreum, 468. Staphylèa, 147.
Variegated.
*Decid.* — Andrómed*a* polifòlia, 560. *D*áphne *Mezèreum*, 686. *Pæ*òn*ia Moútan*, 18. *Ribes*, 468.
Produced late in spring, or the beginning of summer.
Red, blue, or purple.
*Decid.* — Amórpha, 230. *C*ístus, 54. *C*ýtisus, 213. Halimodéndron, 242. Helianthemum, 58. *O*nònis, 229. *R*hododéndron, 583. *Ribes*, 468. *R*òsa, 321. *S*piræ`a, 299. *Syringa*, 635.
*Ev.* — *E*rìca, 555. Kálm*ia*, 598. *R*hododéndron, 583. *R*òsa, 321.
Yellow or orange.
*Decid.* — *Bérberis*, 42. Búddle*a*, 670. Calóphaca, 243. *Caragàna*, 237. *C*istus, 54. *C*ýtisus, 213. *D*ìrca, 692. *G*enìsta, 203. Helianthemum, 58. *H*ypéricum, 74. Jasmìnum, 654. Piptánthus, 198. *R*hododéndron, 583. *Ribes*, 468. *R*òsa, 321. *S*pártium, 202.
*Ev.* — *H*ypéricum, 74. Mahòn*ia*, 50. *R*hododéndron, 583.
White or whitish.
*Decid* — Andrómed*a*, 560. *B*òry*a*, 713. *C*órnus, 501. Cotoneáster, 405. Deùtz*ia*, 465. *J*asmìnum, 654. *L*ígústrum, 628. *P*hiladélphus, 460. Photínia, 403. *Ribes*, 468. *R*òsa, 321. *S*ambùcus, 513. *S*piræ`a, 299. *Syringa*, 635. *V*ìbúrnum, 516.
*Ev.* — Cassándr*a*, 562. *G*árry*a*, 926. Leucóthoë, 568. Lyòn*ia*, 564. *P*hillýrea, 631.
Variegated.
*Decid.* — *A*trapháxis, 679. *C*istus, 54. *C*olùtea, 244. Coronílla, 247. *O*nònis, 229. *R*hododéndron, 583.
*Ev.* — Azàlea, 601. *D*áphne, 686. *E*rìca, 555. Gypsocállis, 557. Kálm*ia*, 598.
Produced in autumn.
Red, blue, or purple.
*Decid.* — *C*eanòthus, 180. *D*áphne *Mezèreum* autumnàle, 686. *H*ibíscus, 62. *R*òsa, 321. *Ev.* — *E*rìca, 555.
Yellow or orange.
*Decid.* — Chimonánthus, 454. *H*amamèlis, 499. *H*ypéricum, 74. *P*aliùrus, 168. *R*òsa, 321. *S*pártium, 202. *Ev.* — *U*`lex nàna.
White or whitish.
*Decid.* — *H*ibíscus, 62. *R*òsa, 321. *S*ambùcus canadénsis, 513. *S*olànum *Dulcamàra* álba, 663. *S*piræ`a, 299.
*Ev.* — *A*`rbutus, 573. *G*árry*a*, 926. *V*ìbúrnum *T*ìnus, 516. *Y*ùcca, 1101.
Variegated.
*Decid.* — Amórpha, 230. Aristotèl*ia*, 182. *H*ibíscus, 62. Leycestèr*ia*, 543. *R*òsa, 321.
*Ev.* — *A*`rbutus, 573. Gypsocállis, 557.
Fragrant flowers.
*Decid.* — Calycánthus, 452. *C*érasus *Mahàleb*, 276. Chimonánthus, 454. *C*lématis Flámmula, 2. *C*ýtisus *L*abúrnum frágrans, 213. *D*áphne *Mezèreum*, 686. *H*ypéricum, 74. Jasmìnum, 654. Lonìcer*a*, 526. *P*hiladélphus, 460. *R*òsa, 321. *S*ambùcus, 513. *S*yringa, 635. *V*ìtis, 136.
*Ev.* — Jasmìnum officinàle, 654. *R*òsa sempervìrens, 321. *R*osmarìnus, 672.

*Selected with reference to their Fruit or Seed.*
Large and showy.
*Decid.* — *C*ydònia, 450. *Ribes* Grossulària, 468. *R*òsa, 321. *R*ùbus, 311.
*Ev.* — *A*`rbutus, 573.
Small, but conspicuous from colour and quantity.
*Decid.* — *Bérberis*, 42. *C*órnus, 501. Cotoneáster, 405. Cratæ`gus, 352. *D*áphne, 686. *E*uónymus, 149. *H*ippóphaë, 698. *L*ígústrum, 628 Lonìcer*a*, 526. *L*ýcium, 665. *M*yrìca, 934. Periploca, 658. *R*hús, 186. *Ribes*, 468. *S*ambùcus, 513. *S*hepherd*ia*, 700. *S*olànum, 663. Symphoricárpus, 541. *V*accínium, 604. *V*ìbúrnum, 516. *V*ìtis, 136.
*Ev.* — Cotoneáster, 405. *C*ratæ`gus, 352. Gaulthèr*ia*, 579. *H*éder*a*, 497. *I*`lex, 156. Juníperus, 1080. Mahòn*ia*, 50. *R*úscus, 1099. *V*accínium, 604. *V*ìbúrnum, 516.
Singular in form or character.
*Decid.* — Búddle*a*, 670. Calóphaca, 243. Calycánthus, 452. Cephalánthus, 544. Chimonánthus, 454. Colùtea, 244. *E*uónymus, 149. Magnòl*ia*, 21. *P*aliùrus, 168. Physiánthus, 659. Staphylèa, 147.
*Ev.* — Magnòl*ia* grandiflòra, 21.

# ANALYSIS OF THE GENERA DESCRIBED,

## ACCORDING TO THEIR LEAVES.

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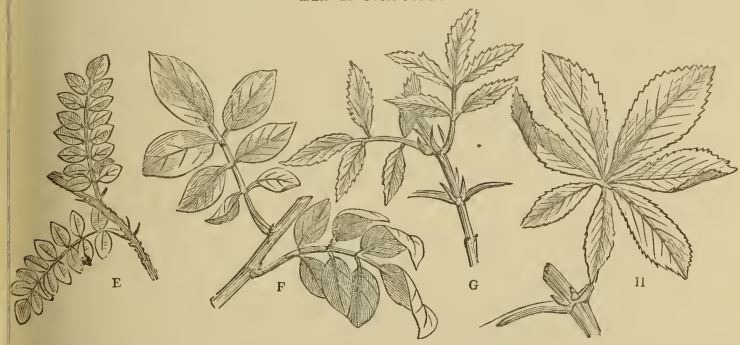
LEAVES SIMPLE.

*Alternate, stipulate*, (A) - - Page lxviii.
*Alternate, exstipulate*, (B) - - - lxix.
*Alternate, stipulate, or exstipulate* - - lxx.
*Opposite, stipulate*, (C) - - - lxx.
*Opposite, exstipulate*, (D) - - - lxx.
*Opposite or alternate, stipulate* - Page lxxi.
*Opposite or alternate, exstipulate* - - lxxi.
*Opposite or alternate, stipulate or exstipulate* - - - - - lxxi.

LEAVES COMPOUND.




*Alternate, stipulate*, (E) - - lxxi.
*Alternate, exstipulate*, (F) - - lxxi.
*Opposite, stipulate*, (G) - - lxxii.
*Opposite, exstipulate*, (H) - - lxxii.
*Alternate or opposite, stipulate* - lxxii.

LEAVES SIMPLE OR COMPOUND.—*Alternate, stipulate* - - lxxii.

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LEAVES SIMPLE

*Alternate, stipulate.*

Deciduous.

Entire along the margins.

| | | |
|---|---|---|
| Three-lobed, fiddle-shaped - - - | LIRIODE'NDRON | Page 36 |
| Linear, caducous, spiny - - - | *U'LEX* - - | - 199 |
| Heart-shaped, reddish - - - - | *CE'RCIS* - | - 256 |
| Coriaceous, roundish, rough - - - | CALYCA'NTHUS | - 452 |
| Coriaceous, oblong-lanceolate, smooth - - | CHIMONA'NTHUS | - 454 |
| Ovate or cuneate - - - - | *HAMAME'LIS* - | - 499 |
| Lanceolate - - - - - | STILLI'*NGIA* - | - 702 |

Serrated.

| | | |
|---|---|---|
| Cordate (one variety laciniate) - - - | *TI'LIA* - - | - 63 |
| Lobed or laciniated - - - - | *VI'TIS* - - | - 136 |
| Oval-lanceolate - - - - | CELA'STRUS - | - 154 |
| Ovate or cordate, 3-nerved, with spines in the axils | *PALIU'RUS* - | - 168 |

| | | |
|---|---|---|
| Lanceolate, conduplicate when young | *Amy'gdalus* | 261 |
| | *Pe'rsica* | 265 |
| Ovate, convolute when young | *Armeni'aca* | 267 |
| | *Pru'nus* | 270 |
| Ovate, conduplicate | *Ke'rria* | 298 |
| Roundish, downy when young | *Amela'nchier* | 411 |
| Lanceolate, often nearly entire | *Me'spilus* | 414 |
| Oblong, usually unequal at the base, harsh to the touch | *U'lmus* | 715 |
| Oblong, unequal at the base, rough above | *Ce'ltis* | 727 |
| Lanceolate or ovate | *Sa'lix* | 744 |
| Lobed, with glands in the serratures | Liquida'mbar | 932 |
| Deeply cut or lobed, fan-nerved | Salisbu'ria | 944 |
| Entire or serrated. | | |
| Ovate, tomentose beneath | *Cydo'nia* | 450 |
| Ovate, the disk oblate, and the petiole compressed | *Po'pulus* | 819 |
| Ovate, glabrous, aromatic in odour | *Be'tula* | 837 |
| Ovate, sometimes cut | *Fa'gus* | 905 |
| Oblong-lanceolate | Casta'nea | 911 |
| Ovate, rough above | *Ca'rpinus* | 916 |
| | *O'styra* | 919 |
| Roundish, rough | *Co'rylus* | 921 |
| Dentate, notched, or otherwise cut at the edges. | | |
| Ovate, variously lobed | *Hibi'scus* | 62 |
| Denticulate, 3-nerved | *Zi'zyphus* | 167 |
| Lobed, angular, or toothed | *Cratæ'gus* | 352 |
| Lobed, or deeply cut | *Ribes* | 468 |
| Ovate or obovate, with soft starry down | Fothergi'lla | 500 |
| Palmate and subtrilobate | *Fi'cus* | 712 |
| Palmate, sinuated | *Pla'tanus* | 927 |
| Entire, serrate or dentate, or otherwise cut at the edges. | | |
| Rough on the upper surface | *A'lnus* | 832 |
| Evergreen. | | |
| Entire. | | |
| Full of pellucid dots | Illi'cium | 20 |
| Serrated. | | |
| Wedge-shaped, pinnatifid | Cowa'nia | 321 |
| Lanceolate, glaucous beneath | Stranvæ'sia | 403 |
| Entire or serrated. | | |
| Shining | Photi'nia | 403 |
| Deciduous, evergreen, or subevergreen. | | |
| Entire. | | |
| Large, aromatic when bruised | Magno'lia | 621 |
| Linear, small, semi-cylindrical | Chenopo'dium | 675 |
| Oval or ovate | | |
| Serrated. | | |
| Conduplicate when young | *Ce'rasus* | 276 |
| Lobed or sinuated, sometimes lanceolate | *Que'rcus* | 846 |
| Besprinkled with resinous dots | *Myri'ca* | 934 |
| Entire or serrated. | | |
| Ovate or lanceolate | *Rha'mnus* | 170 |
| Ovate or elliptic | Ceano'thus | 180 |
| *Alternate, exstipulate.* | | |
| Deciduous. | | |
| Entire. | | |
| Oblong, articulated with the stem | *Asi'mina* | 38 |
| Peltate or cordate | Menispe'rmum | 39 |
| Cordate, ovate, or lobed | Co'cculus | 40 |
| Ovate, serrated at the apex | Nempa'nthes | 154 |
| Lanceolate, soon dropping off | *Spa'rtium* | 202 |
| Deeply cut and divided, apparently compound | *Artemi'sia* | 549 |
| Membranous, heath-like | Menzie'sia | 609 |
| Oblong, coriaceous, shining | *Diospy'ros* | 625 |
| Cordate, ovate, or lanceolate | *Syri'nga* | 635 |
| Fascicled, lanceolate | *Ly'cium* | 665 |
| Fascicled, coriaceous, glauceseent | Crabo'wskia | 669 |
| Linear-lanceolate, hoary | Diò'tis | 677 |
| Minute, caducous, evergreen bark | Calli'gonum | 680 |
| Lanceolate, coriaceous, pale green | *Di'rca* | 692 |
| Oblong or lanceolate | *Ny'ssa* | 693 |
| Lanceolate, beset with scales or stars of hairs | *Elæa'gnus* | 696 |
| Linear-lanceolate, scaly and silvery | *Hippo'phae* | 698 |
| Cordate, downy beneath | *Aristolo'chia* | 701 |
| Ovate, shining | *Maclu'ra* | 711 |
| Linear, in alternate fascicles | *La'rix* | 1053 |
| Linear, 2-ranked, flat | | |
| Serrated. | Taxo'dium | 1077 |
| Ovate, acuminated | Malachode'ndron | 71 |
| Ovate, acute | Stua'rtia | 72 |
| Oval, mucronate | Berche'mia | 169 |
| Obovate, cuneated, serrated at the tips | Lo'wea | 352 |
| Obovate or oval, glabrous on both surfaces | Clè'thra | 581 |
| Cordate or lobed, and rough | *Mo'rus* | 705 |
| Lobed variously, sometimes entire, hairy | Broussone'tia | 710 |
| Entire or serrated. | | |
| Oblong-lanceolate, or linear | *Ba'ccharis* | 546 |
| Ovate, obovate, or oval-lanceolate | *Sty'rax* | 618 |
| Ovate-acuminate | Hale'sia | 620 |

| | | |
|---|---|---|
| Dentate, notched, or otherwise cut at the edges. | | |
| Lanceolate. acute | *I*'TEA | 489 |
| Oval, mucronate | ZENO'BIA | 563 |
| Pinnatifidly dentate, downy, with resinous particles | COMPTO'NIA | 936 |
| Evergreen. | | |
| Entire. | | |
| Lobed or peltate, coriaceous, shiny | *HE*'DERA | 497 |
| Linear, chaffy, small, whorled | *ERI*'CA | 555 |
| Acerose, whorled, glabrous | GYPSOCA'LLIS | 557 |
| Acerose, trigonal, imbricate in 4 rows | CALLU'NA | 559 |
| Linear-lanceolate, mucronulate | ANDRO'MEDA | 560 |
| Acerose, very small, imbricate | CASSI'OPE | 561 |
| Acerose, on short petioles | CASSA'NDRA | 562 |
| Oval, coriaceous | PI'ERIS | 570 |
| Linear, spreading, heath-like | PHYLLO'DOCE | 570 |
| Acerose, elliptic, flat, downy beneath | DABŒ'CIA | 572 |
| Cordate-ovate | EPIGÆ'A | 589 |
| Verticillately ternate, buds naked | KA'LMIA | 598 |
| Oval, convex, glabrous, small | LEIOPHY'LLUM | 602 |
| Linear or ovate, margins revolute, coriaceous, tomentose beneath | LE'DUM | 602 |
| Narrow or linear, crowded | PHLO'MIS | 672 |
| | ROSMARI'NUS | 672 |
| | LAVA'NDULA | 672 |
| | SA'LVIA | 673 |
| Linear, sheathed, needle-like | *PI*'NUS | 950 |
| Linear, scattered, needle-like | *A*'BIES | 1025 |
| Linear, 2-rowed, needle-like | *PI*'CEA | 1036 |
| Linear, in alternate fascicles | *CE*'DRUS | 1057 |
| Acerose, imbricate | ARAUCA'RIA | 1062 |
| Linear, tongue-shaped, obtuse | *E*'MPETRUM | 1091 |
| Linear, needle-shaped, spreading | CERATI'OLA | 1092 |
| | CORE'MIA | 1092 |
| Alike green on both surfaces, usually floriferous | *RU*'SCUS | 1099 |
| Ensiform, pointed, alike on both surfaces | *YU*'CCA | 1101 |
| Serrated. | | |
| Linear, small, crowded, spreading | BRYA'NTHUS | 571 |
| Roundish-oval, small | PHALEROCA'RPUS | 581 |
| Entire or serrated. | | |
| Terminating in a tendril, cordate, oblong | MUTI'SIA | 551 |
| Oblong-lanceolate, coriaceous, shining | *A*'RBUTUS | 573 |
| Linear, solitary, more or less 2-ranked | CUNNINGHA'MIA | 1065 |
| Dentate, notched, or otherwise cut at the edges. | | |
| Ovate-oval, coriaceous, often prickly | *I*'LEX | 156 |
| Oblong or ovate, small, odour of turpentine | DUVAU'A | 192 |
| Linear, hoary or silky beneath | STÆHELI'NA | 546 |
| Linear, small, rowed, tomentose | SANTOLI'NA | 548 |
| Pinnatifid, tomentose, white and mealy beneath | SENE'CIO | 550 |
| Spinulose, coriaceous | LEUCO'THOE | 568 |
| Ovate, small, approximate, stiff, shining | PERNE'TTYA | 578 |
| Ovate, subcordate, ciliate, coriaceous, glabrous, or shining | GAULTHE'RIA | 579 |
| Deciduous evergreen. | | |
| Entire. | | |
| Linear, stem-clasping, small | *TA*'MARIX | 458 |
| Linear, broader at the base, sessile, small | MYRICA'RIA | 459 |
| Oblong, coriaceous, sessile, glaucous | *BU*PLEU'RUM | 495 |
| Ooovate or oval, coriaceous, crowded, glabrous | LYO'NIA | 564 |
| Terminated by a sphacelate (withered) apex, or yellow gland | *RH*ODODE'NDRON | 583 |
| Ovate or elliptic, smooth, small, with revolute margins | *OX*YCO'CCUS | 615 |
| Lanceolate, bluntish | *ARGA*'NIA | 622 |
| Broad, lanceolate, glabrous | *BUME*'LIA | 623 |
| Lanceolate, smooth on both sides | FONTANE'SIA | 638 |
| Ovate-cordate or hastate | *SOLA*'NUM | 663 |
| Spathulate, with a frosty hue | TRAGOPY'RUM | 678 |
| Oblong-pointed, sometimes lobed | *LAU*'RUS | 681 |
| Linear-lanceolate, small | *OSY*'RIS | 695 |
| Serrated | | |
| Oblong, coriaceous, smooth, downy beneath | GORDO'NIA | 73 |
| Entire or serrated. | | |
| Oval or lanceolate | *PRI*'NOS | 163 |
| Obovate or oblong, full of resinous glands, smooth | ESCALLO'NIA | 490 |
| Obovate, coriaceous, shining | *ARCTOSTA*'PHYLOS | 577 |
| Membranous, often beset with resinous dots | *VACCI*'NIUM | 604 |
| Reticulated, alike on both sides | *SMI*'LAX | 1063 |
| Evergreen or subevergreen. | | |
| Dentate, notched, or otherwise cut at the edges. | | |
| Coriaceous, in tufts at the axils | *BE*'RBERIS | 42 |
| Obovate, glaucous | *VE*'LLA | 53 |
| *Stipulate or exstipulate.* | | |
| Deciduous. | | |
| Dentate. | | |
| At the apex obcuneate | PU'RSHIA | 297 |
| Ovate, unequal at the base, rough, dark green | PLA'NERA | 725 |
| Deciduous, evergreen, or subevergreen. | | |
| Entire. | | |
| Generally woolly beneath | COTONEA'STER | 405 |

*Opposite, stipulate.*
Deciduous.
Entire.
Minute, caducous, bark evergreen - - COLLE'TIA - - 178
Oval-elliptic - - - - SYMPHORICA'RPUS - 541
Whorled, oval - - - - CEPHALA'NTHUS - 544
Digitate, 7–5-lobed - - - VI'TEX - - 673
Serrate.
Ovate-acuminate - - - - DIERVI'LLA - - 525
Deciduous, evergreen, or subevergreen,
Entire, connate - - - - - LONI'CERA - - 526
Serrate or dentate, petiolate, and shining - - ARISTOTE'LIA - - 182
Serrate or entire, petiolate, shining - VIBU'RNUM - - 516
*Opposite, exstipulate.*
Deciduous.
Entire.
Ovate-lanceolate, 3-ribbed - - CORIA'RIA - - 146
Lanceolate, glabrous, large - - - CHIONA'NTHUS - 634
Ovate or lanceolate, shining - - - PERI'PLOCA - - 652
Cordate, large - - - - CATA'LPA - - 670
Lanceolate, reticulately veined - - BU'DDLE - - 660
Cordate, undivided or 3-lobed, large - - PAULO'WNIA - - 671
Lanceolate or ovate, beset with silvery scales - SHEPHE'RDIA - - 700
Lanceolate, with very short petioles - - BO'RYA - - - 713
Serrate.
Ovate or cordate, sometimes lobed - - HYDRA'NGEA - - 492
Lanceolate, rough, with dots - - - IVA - - - 548
Serrated or entire
Oval-acuminate, scabrous - - - { PHILADE'LPHUS - 460; DEU'TZIA - 465 }
Dentate, notched, or otherwise cut at the edges.
Variously lobed (one variety deeply lacinaite) - A'CER - - 79
Dentate or entire.
Glabrous, entire, or toothed at the apex - - { DECUMA'RIA - 466 }
Entire.
Ovate-lanceolate, evergreen, pale green with yellow spots - - - - - { AU'CUBA - 511 }
Elliptic, glabrous, small - - - AZA'LEA - - 601
Lanceolate, shining - - - - PHILLY'REA - - 631
Ovate, ciliate, shining - - - - VI'NCA - - 657
Roundish, coriaceous, smooth, shining - - BU'XUS - - 703
Serrate
Oblong, with revolute edges, small - - MYGI'NDA - - 156
Serrate or entire.
Wavy, leathery, dark green, shining - - GA'RRYA - - - 926
Deciduous evergreen, or subevergreen.
Entire.
Undivided, sessile, or sub-sessile, dotted - - { HYPE'RICUM - 74; ANDROSE'MUM - 77 }
Lanceolate, downy - - - - BENTHA'MIA - - 507
Ovate-lanceolate, membranous, glaucous - LEYCESTE'RIA - 543
Lanceolate, glabrous - - - - LIGU'STRUM - - 628
Linear and scale-like, caducous, bark evergreen - E'PHEDRA - - 937
Serrate.
Ovate-lanceolate, sometimes linear, mostly deciduous - - - - - { EUO'NYMUS - 149 }
Dentate or entire.
Petioles embracing the stems - - - CI'STUS - - - 54
*Opposite or alternate, stipulate.*
Evergreen.
Entire.
Rhomb-shaped, bearing a mealy powder - A'TRIPLEX - - 676
*Opposite or alternate, exstipulate.*
Deciduous.
Entire.
Lanceolate, sometimes whorled - - - PU'NICA - - - 456
Oblong, small-fascicled - - - NITRA'RIA - - 467
Deciduous, evergreen, or subevergreen.
Entire.
Smooth, oval-lanceolate - - - - CO'RNUS - - - 501
Rigid, pale green on both sides - - - VI'SCUM - - - 508
Glabrous, shining, sometimes small - - DA'PHNE - - - 686
Linear, more or less 2-rowed - - - { TA'XUS - 939; TORRE'YA - 943 }
Scale-like, closely imbricated, compressed - THU'JA - - - 1068
Scales situated under the joints of the branches - CA'LLITRIS - - 1072
Linear, adpressedly imbricate - - - CUPRE'SSUS - - 1073
Scale-shaped, minute, sometimes linear - - JUNI'PERUS - - 1080
*Opposite or alternate, stipulate or exstipulate.*
Subevergreen.
Entire.
3-nerved or feather-nerved, hoary or pilose - HELIA'NTHEMUM - 58

LEAVES COMPOUND.

*Alternate, stipulate.*
Deciduous.
Entire.
Biternate or bipinnate, strong-smelled - - PÆO'NIA - - 18
Pinnate, 3—5-foliolate - - - - PTE'LEA - - 143
Trifoliolate, pilose, or pubescent - - ADENOCA'RPUS - 227

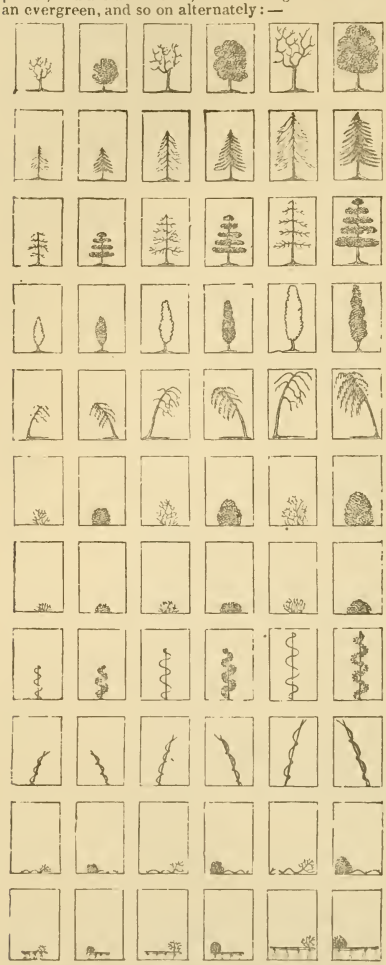
| | | |
|---|---|---|
| Impari-pinnate | AMO'RPHA | 23 |
| Impari-pinnate, beset with glands | EYSENHA'RDTIA | 232 |
| Abruptly pinnate, leaflets mucronate | CARAGA'NA | 23 |
| Abruptly pinnate, leaflets 2 pairs | HALIMODE'NDRON | 2 |
| Impari-pinnate, leaflets orbicular | CALO'PHACA | 24 |
| Impari-pinnate, stipules small | COLU'TEA | 246 |
| Pinnate, petioles permanent | ASTRA'GALUS | 2 |
| Abruptly pinnate, and bipinnate, or simple | GLEDI'TSCHIA | 24 |
| Bipinnate, 4—7 pinnæ | GYMNO'CLADUS | 25 |
| Serrate. | | |
| Pinnate, 3—13-foliolate | XANTHO'XYLUM | 14 |
| Impari-pinnate, doubly and trebly serrate, very large | ARA'LIA | 496 |
| Dentate, notched, or otherwise cut at the edges. | | |
| Impari-pinnate, with ovate leaflets | KÖLREUTE'RIA | 134 |
| Dentate or serrate. | | |
| Trifoliolate, stipules connate | ONO'NIS | 22 |
| Deciduous, evergreen, or subevergreen. | | |
| Entire. | | |
| Trifoliolate, leaflets elliptical-oblong | PIPTA'NTHUS | 198 |
| Trifoliolate, often pubescent | CY'TISUS | 213 |
| Impari-pinnate, glabrous | CORONI'LLA | 247 |
| Serrate. | | |
| Impari-pinnate, stipules attached to the petiole | RO'SA | 321 |
| Dentate or serrate. | | |
| Digitate, pinnate or lobed, rough | RU'BUS | 311 |
| *Alternate, exstipulate.* | | |
| Deciduous. | | |
| Entire. | | |
| Impari-pinnate, with 11—13 leaflets | SO'PHORA | 195 |
| Impari-pinnate, with 9—11 leaflets | VIRGI'LIA | 197 |
| Impari-pinnate, leaflets petiolate | ROBI'NIA | 233 |
| Impari-pinnate, leaflets oval, pointed | WISTA'RIA | 248 |
| Serrate. | | |
| Trifoliolate or bipinnate, leaflets ovate | CI'SSUS | 141 |
| Impari-pinnate, 5—19 leaflets | JU'GLANS | 732 |
| Impari-pinnate, 5—15 leaflets | CA'RYA | 735 |
| Impari-pinnate, 17 leaflets, sessile | PTEROCA'RYA | 743 |
| Dentate, notched, or otherwise cut at the edges. | | |
| Palmate, pinnate, or bipinnate | AMPELO'PSIS | 139 |
| Impari-pinnate, teeth glandulous on the under side | AILA'NTUS | 145 |
| Evergreen. | | |
| Dentate or serrate. | | |
| Pinnate, coriaceous, dark green | MAHO'NIA | 50 |
| Deciduous, evergreen, or subevergreen. | | |
| Entire. | | |
| Impari-pinnate, reddish green | PISTA'CIA | 184 |
| Conjugate, trifoliate, tendriled | BIGNO'NIA | 660 |
| *Opposite, stipulate.* | | |
| Deciduous. | | |
| Serrate. | | |
| Pinnate, with compound and partial stipules | STAPHYLE'A | 147 |
| Dentate, notched, or otherwise cut at the edges. | | |
| Pinnate, the pinnæ often bi-glandular at the base | SAMBU'CUS | 513 |
| Dentate or serrate. | | |
| Pinnately divided, leaflets irregular | XANTHORHI'ZA | 19 |
| *Opposite, exstipulate.* | | |
| Deciduous. | | |
| Serrate. | | |
| Biternate, leaflets oblong lanceolate | ATRA'GENE | 16 |
| Impari-pinnate, leaflets nearly sessile, buds black (One variety has simple leaves, p. 642.) | FRA'XINUS | 639 |
| Impari-pinnate, buds ash-coloured | O'RNUS | 651 |
| Impari-pinnate, leaflets 7—9, petioles marginate | TE'COMA | 661 |
| Dentate, notched, or otherwise cut at the edges. | | |
| Impari-pinnate, 3—5 leaflets | NEGU'NDO | 122 |
| Palmate, leaflets rough | Æ'SCULUS | 124 |
| Palmate, leaflets smooth | PA'VIA | 128 |
| Deciduous, evergreen, or subevergreen. | | |
| Entire. | | |
| Pinnate, in decussating pairs | CLE'MATIS | 2 |
| *Alternate or opposite, stipulate.* | | |
| Subevergreen. | | |
| Entire. | | |
| Pinnately cut, hairy | POTENTI'LLA | 319 |

## LEAVES SIMPLE OR COMPOUND.

| | | |
|---|---|---|
| *Alternate, stipulate.* | | |
| Deciduous. | | |
| Serrate or entire. | | |
| Simple, or unequally pinnate | RHU'S | 186 |
| Simple, but sometimes pinnately divided | PY'RUS | 417 |
| Dentate or serrate. | | |
| Usually simple, but sometimes pinnately cut | SPIRÆ'A | 299 |
| Deciduous, evergreen, or subevergreen. | | |
| Entire. | | |
| Lanceolate, linear, or trifoliolate | GENI'STA | 203 |
| Trifoliolate or pinnate | JASMI'NUM | 654 |

# EXPLANATION OF SIGNS, &c.

Under the titles of the orders are given signs, intended to show at a glance the general habit of the trees or shrubs described in each order. These signs represent large, small, and middle-sized plants, and are as follows; the first sign in each row indicating a deciduous tree or shrub, the next an evergreen, and so on alternately: —



1. Round-headed trees; such as the oak, ash, elm, beech, chestnut, &c. Deciduous and evergreen.

2. & 3. Spiry-topped or conical trees; such as the spruce fir, silver fir, larch, pine, deciduous cypress, &c. Deciduous and evergreen.

4. Fastigiate trees; such as the Lombardy poplar, evergreen cypress, pyramidal oak, &c. Deciduous and evergreen.

5. Drooping trees; such as the weeping willow, weeping elm, &c.

6. Shrubs of the largest size, and also middle-sized shrubs. Deciduous and evergreen, but exclusive of twiners, climbers, trailers, &c.

7. Under-shrubs, or shrubs of the smallest size. Deciduous and evergreen, but exclusive of twiners, trailers, &c.

8. Twining shrubs; such as the honeysuckle, aristolochia, &c. Deciduous and evergreen.

9. Climbing shrubs; such as the clematis, ampelopsis, vine, &c. Deciduous and evergreen.

10. Trailing shrubs, the branches of which lie prostrate on the ground, but do not root into it; such as many species of willow, *Cy*tisus, &c.

11. Creeping shrubs, or such as send up shoots from their creeping roots; as many species of Spiræ'a, &c.

The signs put before each individual species and variety are the same as those used in the *Gardener's Magazine*, and in the *Hortus Britannicus*, viz.

- Deciduous tree.
- Evergreen tree.
- Deciduous shrub.
- Evergreen shrub.
- Deciduous under-shrub.
- Evergreen under-shrub.
- Deciduous twiner.
- Evergreen twiner.
- Deciduous climber.
- Evergreen climber.
- Deciduous trailer.
- Evergreen trailer.
- Deciduous creeper.
- Evergreen creeper.

## Accentuations and Indications.

All the botanic names throughout the Work are accented, and have their origin indicated, as in the *Hortus Britannicus* and the *Gardener's Magazine*. The vowels which are sounded short are marked with an acute accent, thus (′), as A′ceras; and those which are sounded long are marked with a grave accent, thus (`), as A`brus. The origin of each name is indicated thus: if the name has been applied to a plant by the ancients, the first letter is in Italic, as *P*inus; if it is commemorative of some individual, the letters additional to the name are in Italic, as Bánks*ia*, Lamber*tià*na, Douglàs*ii*; and if an aboriginal name has been adopted, or if the name is of uncertain derivation, the whole word is in Italic, as, *Ailántus*, *Caragàna*, &c. Where the name would otherwise be in Italic, as in the case of synonymes, headings to paragraphs, &c., these distinctions are, of course, reversed, as *Pinus*, *Bánk*sia, Ailántus. All the other scientific names, generic or specific, are composed from the Greek or Latin, except a very few which are taken from places: as Araucària, from the country of the Araucanians; *Q*uércus gramúntia, from the estate of Grammont, &c.

## The engraved Figures

Are all to the same scale of 2 in. to 1 ft., or one sixth of the natural size; with the exception of details, which, when given, are generally of the natural size, and indicated by a cross, thus, +.

ABRIDGED

# ARBORETUM ET FRUTICETUM BRITANNICUM

TREES and shrubs, in common with all other flowering plants, are arranged by botanists in two grand divisions; viz. the Exogenous, or Dicotyledonous, Plants, the stems of which increase from without, and the leaves of which have reticulated veins; and the Endogenous, or Monocotyledonous, Plants, the stems of which increase from within, and the leaves of which have parallel veins. The first class includes all the hardy trees and shrubs in Britain, with the exception of shrubs of the genera *Yúcca*, *S*mìlax, *R*úscus, and one or two others, which belong to the second class. We shall arrange the genera and species under the same subdivisions, subclasses, sections, orders, and tribes, as we have adopted from DeCandolle in our *Hortus Britannicus*.

## CLASS I. EXO'GENÆ.

*Stems increasing from without; Leaves with reticulated Veins.*

### SUBDIVISION I. DICHLAMY'DEÆ.

*Calyx and Corolla distinct, by which they are distinguished from Subdivision* II., *in which the flowers have only a calyx.*

It is in consequence of this high developement of the floral envelopes, that the greater part of handsome-flowering trees and shrubs are found in Dichlamýdeæ, it rarely happening that those with a single floral envelope have any brilliant colouring.

### SUBCLASS I. THALAMIFLO'RÆ.

*Flowers with Petals and Stamens inserted in the Receptacle*

This subclass contains all the Polyandrous plants of Linnæus; as the subclass Calyciflòræ, in which the stamens are seated on the calyx, contains all the plants of the Linnæan class Icosándria.

### SECTION I.

*Carpella, that is, the component Parts of compound Capsules or Fruits, numerous; or the Stamens placed opposite the Petals.*

### ORDER I. *R*ANUNCULA'CEÆ.

*THE Diagnostic, or Distinctive, Character*, or, as we shall term it, the Ordinal Character, of this order, is thus given by Dr. Lindley:—"*Polypetalous,*

with hypogynous *stamens* [that is, stamens under the pistil] ; *anthers* bursting by longitudinal slits ; several distinct simple *carpella* [fruits] ; exstipulate *leaves*, sheathing at their base ; solid *albumen ;* and *seeds* without arillus." (*Nat. Syst.*, p. 6.) — Climbing shrubs scarcely woody, and low suffruticose bushes. Natives of Europe, Asia, and North America.

*Leaves* generally alternate, but sometimes opposite, generally exstipulate; deciduous, or evergreen ; much divided, especially in *C*lématis, in which the leaves are not articulate with the stem. The petioles often serve as tendrils ; and are dilated at the base, forming a sheath half-clasping the stem. Hairs if any, simple. *Inflorescence* small in Xanthorhìza, and some species of *C*lématis, and large in *P*æòn*ia*. *Seeds* small and pointed, except in *P*æòn*ia*. — The species in British gardens are included in two tribes, *C*lematídeæ and *P*æoni*àceæ*, which contain the genera *C*lématis, *A*trágene, *P*æòn*ia*, and Xanthorhìza.

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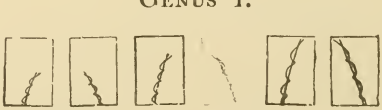
## Tribe I. *C*LEMATI'DEÆ.

*Tribal Character.* Climbers, characterised by having the æstivation of the calyx valvate or induplicate ; with no petals, or with the petals flat ; the anther opening outwards ; the carpels, or seed-vessels, not opening, one-seeded, terminated by a tail, which is the indurated style. Seed pendulous. Leaves opposite. Deciduous and evergreen climbers. — The genera are two, *C*lématis and *A*trágene, which are thus contradistinguished : —

*C*LE'MATIS *L.* Petals none. *A*TRA'GENE *L.* Petals several.

### GENUS I.



*C*LE'MATIS *L.* THE CLEMATIS, *or* VIRGIN'S BOWER. *Lin. Syst.* Polyándria Polygýnia.

*Identification.* The word Klematis was, as well as Atragene, used by Theophrastus, to designate the *C*lématis Vitálba of Linnæus. Clematis was used by Matthiolus, and also by Clusius, who applied it to *C.* Viticélla *L.* and *C.* cirrhòsa *L.*

*Synonymes.* Ladies' Bower *Gerard*; Clématite, *Fr.* ; Waldrebe, *Ger.* ; Clematide, *Ital.*

*Derivation.* The word Clematis, or Klematis, is derived from the Greek word *klēma*, a small branch of a vine ; and it is applied to this genus, because most of the plants composing it climb like a vine. The English name of Ladies' Bower was probably adopted from its suitableness for covering bowers ; and, as the first kind of clematis brought to England (*C.* Viticélla) was introduced in 1569, during the reign of Elizabeth, the name of Virgin's Bower might be intended to convey a compliment to that sovereign, who, as it is well known, liked to be called the Virgin Queen. Waldrebe is compounded of *wald*, a wood, and *rebe*, the branch of a vine.

*Generic Character. Involucre* none, or situated under the flower, in the form of a calyx. *Calyx* of from four to eight coloured sepals. *Petals* none. *Carpels* numerous, aggregate, terminated by a long, and mostly feathery, tail.— Climbing shrubs, with variously cut opposite leaves. The recent herb of all the species is acrid, and, when applied to the skin, it occasions blisters. (*Don's Mill.*) The seed is pendulous, and the carpels are one seeded ; each is terminated by a persistent style, and does not open until ruptured by the germination of the seed.

*Leaves* compound, opposite in decussating pairs, without stipules, deciduous or evergreen ; the petiole possessed of a clasping power for attaching the plant to contiguous bushes, or similar objects ; in all the species, more or less persistent after they are decayed. *Flowers* in axillary ramose panicles; small and white in some, and in others larger and highly coloured. *Seed*

small, seldom seen divested of its envelope, as that never bursts till after it is committed to the soil. — The species are included in four sections; viz. Flámmula, Viticélla, Cheirópsis, and Anemoniflòra.

Root strong; the fibres rather straight, and not very much branched; extended in the soil rather horizontally than perpendicularly. Stem ligneous, not rigid enough to stand erect. Branches the same, and slender. Well adapted for covering bowers, or for ornamenting verandas or trelliswork. The greater number of the species ripen their seeds in England, and are easily propagated by them, or by layers. The seeds retain their vitality for several years; they are of slow vegetation, and ought to be sown as soon as gathered, in which case they will generally come up the following spring; though, sometimes, not till the second spring. All the species require support by props of some kind; and all, with one or two exceptions, grow freely in any soil that is tolerably dry, but more especially in one that is calcareous. From the acridity of these plants, they are not very liable to be attacked by insects; nevertheless, snails and slugs are occasionally found eating their young herbage.

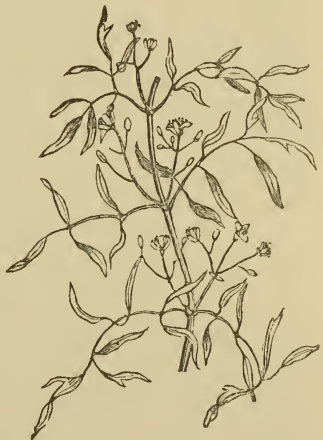
## § i. *Flámmula* Dec.

*Sectional Character.* Involucre wanting. Tail of the carpels long, bearded and feathery. Cotyledons distinct (that is, slightly separated) in the seed. (*Don's Mill.*, i. p. 3.) Deciduous.

### 1. CLEMATIS FLAMMULA *L.* The inflammatory-*juiced* Clematis, *or sweet-scented Virgin's Bower.*

*Identification.* Lin. Sp., 766.; Dec. Prod., 1. p. 2. Don's Mill., 1. p. 4.
*Synonymes.* *C.* ùrens *Gerard*; *C.* marítima *All. Ped.*; *C.* suavèolens *Salisb. Prod.*; *C.* paniculâta *Thun.*; Clématite odorante, *Fr.*; scharfe Waldrebe, *Ger.*
*Derivation.* From *flammare*, to inflame; on account of the blistering qualities of the species.
*Engravings.* Park. Theat., p. 381. f. 3.; and our *fig.* 1.

*Specific Character and abridged Description.* Leaves pinnate, smooth; with orbicular, oval, oblong, or linear, entire or three-lobed, acutish leaflets. (*Don's Mill.*) A deciduous climber. South of Europe; in hedges and waste bushy places, not far from the sea, and in soils more or less calcareous. Height 10 ft. to 15 ft. Introduced in 1596. Flowers white, sweet-scented; July to October. Fruit white; ripe in October. Leaves deep green, often remaining on the plants till mid-winter, and dying off black.



1. Clématis Flámmula.

*Varieties and their Synonymes.* The most distinct is *C.* F. marítima; the rest are of little importance.

- C. *F.* 2 *rotundifòlia* Dec. *C.* fràgrans *Tenore.* — Leaflets almost orbicular.
- C. *F.* 3 *marítima* Dec. — Leaflets linear.
- C. *F.* 4 *rubélla* Dec. — Leaflets oval, usually emarginate. Sepals four, reddish on the outside.

♃ C. *F.* 5 *cæspitòsa* Dec. *C.* cæspitòsa *Scop.*, *C.* Flámmula *Bertol.* — Leaflets minute, entire or cut.

♃ C. *F.* 6 *paniculàta.* *C.* paniculàta *Thun.* — Flowers with the peduncles simple.

A vigorous-growing plant, the stems of which rapidly attain the length of from 15 ft. to 30 ft. in a state of culture. The leaves are subject to much variation, from soil, situation, and climate. The peduncles of the flowers are sometimes simple, and sometimes branched. The colour of the sepals is white, slightly pubescent on their exterior margins. The whole plant has a dark green hue; and in autumn it is abundantly covered with flowers, the odour of which is of a honied sweetness, exceedingly disagreeable to some persons when near, though at a distance it is not unlike the fragrance of the common hawthorn. From the rapidity of its growth, it will in four or five years cover a very large space of wall, roof, or bower. Its herbage is considered less acrid than that of any other of the European species, notwithstanding its name of Flámmula.

### ♃ 2. *C.* ORIENTA`LIS *L.* The Oriental Clematis.

*Identification.* Lin. Sp., 765.; Dec. Prod., 1. p. 3.; Don's Mill., 1. p. 4.
*Synonymes.* Flammula scandens apii folio glauco, *Dill. Elth.* 144.; *C.* flàva *Mœnch. Meth.* 296.; the Eastern, or yellow-flowered, Virgin's Bower; *C.* glaúca *Willd.*; *C.* ochroleùca *Hort.*; Clématite orientale, *Fr.*; Morgenländische Waldrebe, *Ger.*
*Engravings.* Dill. Elth., t. 119. f. 145.; and our *fig.* 2.

*Spec. Char., &c.* Leaves pinnate; leaflets smooth, wedge-shaped, with three toothed pointed lobes. (*Don's Mill.*) A deciduous climber. Levant and Caucasus. Height 10 ft. to 15 ft. Introduced in 1731. Flowers greenish yellow slightly tinted with russet, sweet-scented; July, August. Fruit white; ripe in October. Leaves somewhat glaucous, dying off black or dark-brown.

*Varieties.* C. *glaúca* Willd. and C. *ochroleùca* Hort. are, by some, alleged to be varieties of *C.* orientàlis; but we do not consider them sufficiently distinct for varieties, and have, therefore, included these names in our synonymes.

2. Clématis orientàlis.

The general magnitude of this species resembles that of *C.* Flámmula, from which it differs in its ulterior branches being more persistently ligneous, though the main stem in old plants is seldom seen so thick as that of *C.* Flámmula. It is also distinguished from the latter species by throwing up suckers freely, which the other does not. Its leaflets are glaucous, flat, large as compared with those of *C.* Flámmula; and it does not produce flowers so profusely as that species. The flowers are yel-

lowish, and not so strongly scented; and the carpels are dissimilar, though still cottony in appearance when the seed is ripe.

### ♃ 3. *C.* CHINE'NSIS *Retz.* The Chinese Clematis.

*Identification.* Retz. Obs., 2. p. 18.; Dec. Syst., 1. p. 137.; Don's Mill., 1. p. 4.
*Synonyme.* *C.* sinénsis *Lour. coch.* 1. p. 422.
*Engraving.* Our *fig.* 3.

*Spec. Char., &c.* Leaves pinnate; leaflets ovate-lanceolate, quite entire. Peduncles few-flowered, longer than the leaves. Ovaries usually four, with almost naked tails. (*Don's Mill.*) A deciduous climber. China, in the island called Danes. Height 10 ft. to 15 ft. Introduced in 1820. Flowers ?. Leaves purplish green, retained till rendered black by frost.

A plant in the Horticultural Society's Garden, grows vigorously against a wall, producing shoots as long and strong as those of *C.* Flámmula; and retaining its leaves till they are blackened by frost. It has never flowered; but, in its leaves and its general appearance, it seems to resemble *C.* orientàlis, except that the leaves are of a dark purplish green, instead of being glaucous.

3. Clématis chinénsis.

### ♃ 4. *C.* VITA'LBA *L.* The White-Vine Clematis, *or Traveller's Joy.*

*Identification.* Lin. Sp., 766.; Dec. Prod., 1. p. 3.; Smith's Eng. Fl., 3. p. 39.; Don's Mill, 1. p. 4.
*Synonymes.* Athragenê *Theoph.*; *V*itis sylvèstris *Dios.*; *C.* latifòlia seu *A*trágene *Ray*; *C* áltera *Math.*; *C.* têrtia *Com.*; Viórna *Ger.* and *Lob.*; *V*itis nigra *Fuch.*; Vitálba *Dod.*; the Old Man's Beard, Bindwith, the common Virgin's Bower, the wild Climber, the great wild Climber; Clématite brulante, Clématite des Haies, l'Herbe aux Gueux, la Viorne des Pauvres, *Fr.*; gemeine Waldrebe, *Ger.*
*Derivation.* Because of its "decking and adorning the ways and hedges where people travel," says Gerard, "I have named it the traveller's joy." The name of Old Man's Beard is very appropriate to the white and hairy appearance of the tails of the carpels; and Bindwith, from the shoots being used instead of those of willows for tying up plants. White Vine is supposed to allude to the white appearance of the tails of the carpels in autumn. The French name of Clématite brulante has reference to the acrid properties of the plant; and Clématite des Haies to its growing generally in hedges. The name of l'Herbe aux Gueux refers to the employment of it by the beggars in France, who use it to makes ulcers in their arms and legs, for the purpose of exciting compassion, curing themselves afterwards by the application of the leaves of the beet. La Viorne des Pauvres alludes to the same practice, Viorne being evidently derived from Viórna.
*Engravings.* Jacq. Austr., 4. t. 308.; Eng. Bot., 612.; and our *figs.* 4. & 5.

4. Clématis Vitálba.

*Spec. Char., &c.* Leaves pinnate; leaflets ovate-lanceolate, acuminated, cordate

at the base, partly cut. Peduncles forked, shorter than the leaves. (*Don's Mill.*) A deciduous climber of vigorous growth. Europe and Britain, in hedges and copses, always indicating a calcareous soil. Height 15 ft. to 30 ft.; in rich soil, and in a sheltered situation, 50 ft. to 100 ft. Flowers white; August, September. Fruit white; ripe from October to February. Leaves long retained, and dying off black or dark brown.

5. Fruit of *C.* Vitálba.

The stems are woody, more so than those of any other species, angular, climbing to the height of 20 or 30 feet, or upwards, and hanging down from rocky cliffs, ruins, or the branches of trees; or being supported by, and forming tufts on, the upper surface of other shrubs or low trees, which they often so completely cover as to have the appearance of bushes at a distance. The footstalks of the leaves are twined about whatever object they approach, and afterwards become hard and persistent, like the tendrils of a vine. The leaflets are either quite entire, or unequally cut; sometimes very coarsely so. The panicles are axillary and terminal, many-flowered and downy. The flowers are of a greenish white colour, with little show; but they have a sweet almond-like scent. The seeds (*fig.* 5.) have long, wavy, feathery, and silky tails, forming beautiful tufts, most conspicuous in wet weather. The French gardeners use the twigs instead of withs, for tying up their plants; and make very neat baskets of them when peeled, and also bee-hives. The twigs are in the best state for making these articles in winter; and their flexibility is increased by holding them to the fire before using them. In gardens and plantations the plant is valuable for the rapidity with which it may be made to cover naked walls, unsightly roofs of sheds, or low buildings and arbours; and for a variety of similar purposes.

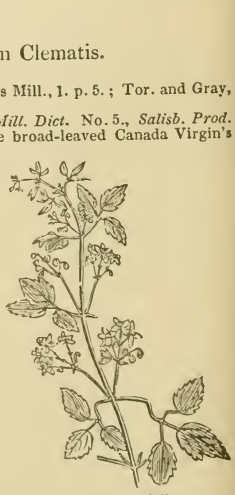
### ♃ 5. *C.* VIRGINIA'NA *L.* The Virginian Clematis.

*Identification.* Linn. Amœn., p. 275.; Dec. Prod., 1. p. 4.; Don's Mill., 1. p. 5.; Tor. and Gray, 1. p. 8.

*Synonymes.* *C.* canadénsis trifólia rèpens *Tourn.*; *C.* canadénsis *Mill. Dict.* No. 5., *Salisb. Prod.* 371.; *C* cordifólia *Mœnch. Supp.* 104.; *C.* triternàta *Hort.*; the broad-leaved Canada Virgin's Bower; Clématite de Virginie, *Fr.*; Virginische Waldrebe, *Ger.*

*Engravings.* Den. Brit. (the male plant), t. 74.; and our *fig.* 6.

*Spec. Char., &c.* Flowers panicled, diœcious. Leaves ternate; leaflets cordate, acute, grossly toothed, or lobed. (*Don's Mill.*) A deciduous climber. Canada to Florida, in hedges and near rivers. Height 10 ft. to 15 ft. Introduced in 1767. Flowers white; August, September. Fruit white. Decaying foliage brown or black.



6. Clématis virginiàna.

*Variety.*

♃ C. *v.* 2 *bracteàta* Dec. *C.* bracteàta *Mœnch.* —Leaflets ovate-lanceolate, entire.

The general appearance of this plant is like that of *C.* Vitálba; but it is less robust in all its parts, and less ligneous in its stems and branches; and it is also somewhat more tender. Panicles trichotomously divided, with small leaves at the divisions. Sepals 4, white, obovate, exceeding the stamens. Flowers often diœcious or polygamous. (*Tor. and Gray.*) Miller states that it seldom ripens seeds in England; but, as it is diœcious, it is possible that he possessed only the male plant.

§ 6. *C.* GRA'TA *Wall.* The grateful-*scented* Clematis.

*Identification.* Wall. Asiat., 1. t. 98.
*Synonymes.* *C.* odoràta *Hort.*; *C.* triternàta *Hort.*; *C.* nepalénsis *Hort.*
*Engravings.* Wall. Asiat., 1. t. 98.; and our *fig.* 7.

*Spec. Char., &c.* Flowers axillary, panicled; leaves subbiternate, villous; leaflets cordate, acuminated, serrated, 3-lobed; sepals obtuse. (*G. Don.*) A deciduous climber. Nepal, on mountains. Height 10 ft. to 18 ft. Introduced in 1831. Flowers white.

Closely resembling *C.* virginiàna, but rather more hoary; and equally hardy, though it has not yet flowered freely in the open air. A shoot introduced into the inside of a stove in the Chelsea Botanic Garden, from a plant on the outside, flowered there in 1833. Frequent in nurseries as *C.* nepalénsis.

7. Clématis gràta.

§ 7. *C.* VIO'RNA *L.* The road-ornamenting Clematis, *or leathery-flowered Virgin's Bower.*

*Identification.* Lin. Sp., 765.; Dec. Prod., 1. p. 7.; Don's Mill., 1. p. 8.; Tor. and Gray. 1. p. 9.
*Synonymes.* *C.* purpùrea rèpens *Ray*; Flàmmula scándens, flore violaceo clauso, *Dill. Elth.*; American Traveller's Joy; the Virginian Climber; the purple Climber; Clématite Viorne, *Fr.*; Glockenblüthige Waldrebe, *Ger.*
*Derivation.* From *via*, a way, and *ornare*, to ornament. Leather-flowered Virgin's Bower refers to the remarkably thick texture of the sepals; the German name signifies bell-flowered woodvine.
*Engravings.* Dill. Elth., 118. f. 144; and our *fig.* 9.

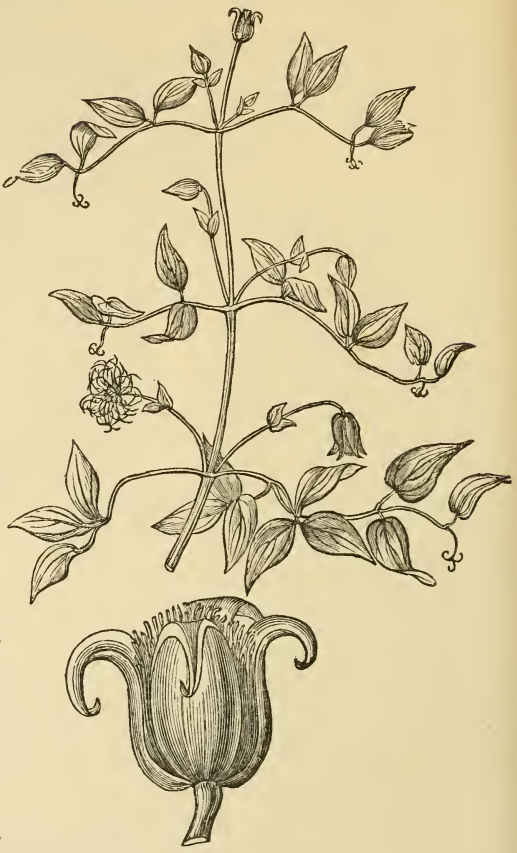
*Spec. Char., &c.* Peduncles 1-flowered. Sepals connivent, thick, acuminated, reflexed at the apex. Leaves smooth, pinnate; leaflets entire, 3-lobed, alternate, ovate, acute, floral ones entire. (*Don's Mill.*) A deciduous climber. Pennsylvania to Georgia. Height 6 ft. to 12 ft. Introduced in 1730. Flowers purple without, whitish within; June to August. Fruit white; ripe in September. Decaying leaves retained long, and dying off black.

*Variety.* C. *V.* 2 *cordàta.* *C.* cordàta *Sims Bot. Mag.* t. 1816., and our *fig.* 9. from that plate; *Clém. Símsii* Sweet's Hort. Brit.

8. Clématis Viórna cordàta.

This species is striking in the dissimilarity of its flowers to those of most other species. It is of vigorous growth, and, exclusive of its flowers, assimilates to *C.* Viticélla; but its stems and branches are less decidedly ligneous. The stems are numerous, slender, and round; the peduncles of the flower are long, deflexed towards the tip, rendering the flowers pendulous; the sepals never open, except at their extreme ends, which are bent back, giving the whole flower a bell shape, but with the mouth of the bell narrower than the body. The sepals are of a greenish purple or reddish lilac on the outside, and of a very pale green within. The stamens scarcely emerge from the sepals. The carpels are broad and flat, as they ripen, the tail becomes bent in and plumose, and of a brownish green colour. It

is most ornamental as a single plant, trained to a rod or to a wire frame. As its branches are not very decidedly ligneous or persistent, but consist mostly of annual shoots from a suffruticose base, and are not much branched, the plant does not exhibit a bushy head. It thrives best in bog earth, kept somewhat moist, in which circumstance it differs from most of the woody species of *Clématis*. It may be increased by layers, though not so readily as from seeds, which it produces in abundance. This species, *C.* cylíndrica, and *C.* reticulàta, being neither very woody, nor very luxuriant in growth, may all be treated as herbaceous plants, to be supported during the flowering season by temporary props. Few border plants, indeed, will be found more elegant or more ornamental when so managed.



9. Clématis Viórna.

### 8. *C.* CYLÍNDRICA *Sims.* The cylindrical-*flowered* Clematis.

*Identification.* Sims, in Bot. Mag., t. 1160.; Dec. Prod., 1. p. 7.; Don's Mill., 1. p. 8.; Tor. and Gray, 1. p. 10.
*Synonymes.* *C.* críspa *Lam.*, but not of Linn.; *C.* Viórna *Andr.* in *Bot. Rep.*; *C.* divaricàta *Jacq.*; the long-flowered Virgin's Bower; Clématite à longues Fleurs, *Fr.*
*Engravings.* Bot. Mag., t. 1160.; Bot. Rep., t. 71.; and our *fig.* 10.

*Spec. Char., &c.* Peduncles 1-flowered. Sepals thin, acuminated, reflexed at the apex, with wavy margins. Leaves slender, pinnate; leaflets stalked, ovate or oblong, middle one sometimes trifid, floral ones entire. (*Don's Mill.*) A deciduous climber. North Carolina and Florida. Height 3 ft. to 5 ft. Introduced in 1802. Flowers large, purplish blue, nodding; June, August. Fruit white; ripe in September.

10. Clématis cylíndrica.

DeCandolle describes this species as related to *C.* Viórna, reticulàta, and críspa, and discriminated it from these. *C.* cylíndrica, he says, differs from *C.* Viórna, in the segments of its leaves being entire and not trifid; in the flowers being blue, not reddish lilac and pale within, and twice the size of those of *C.* Viórna; in the sepals

being not leathery, but somewhat of the consistence of paper, with the margin waved; the ovaries 12-15, not 25-30. *C.* cylíndrica differs from *C.* reticulàta in its leaves being in consistence papery, not leathery; scarcely veined, not reticulately veined; and in other points. *C.* cylíndrica closely resembles *C.* críspa in habit and mode of flowering; but differs from it in its sepals being waved in the margin, not rolled backwards, in its larger flowers, and especially in its carpels having long bearded tails, and not naked ones. *C.* Viórna and *C.* cylíndrica, seen together in a living state, are very dissimilar in appearance. *C.* Viórna has vigorous long branches and reddish flowers. which are acorn-like in figure, except that they have a spreading mouth; there is also obvious dissimilarity in the foliage and shoots, *C.* cylíndrica being almost herbaceous.

10*a*. Fruit of Clématis cylíndrica.

♃ 9. *C.* RETICULA'TA *Walt.* The net-veined-*leaved* Clematis.

*Identification.* Walt. Fl. Car., 156.; Dec. Prod., 1. p. 7.; Don's Mill., 1. p. 8.; Tor. and Gray, 1. p. 10.
*Synonymes.* *C. rò*sea *Abbott*; *C.* Sims*ii* Hook.; the netted Virgin's Bower; the reticulated Clematis.
*Engravings.* Dend. Brit., t. 72.; and our *fig.* 11.

*Spec. Char., &c.* Peduncles 1-flowered. Sepal connivent. Leaves coriaceous, netted with nerves, smooth, pinnate; leaflets stalked, 3-lobed or entire, ovate. (*Don's Mill.*) A deciduous climber. S. Carolina and Georgia. Height 6 ft. to 8 ft. Introduced in 1812. Flowers pale purplish red; June to August. Fruit white; ripe in September.

Leaflets all petiolulate, 1 in. to 1½ in. long, undivided or variously lobed, the lowest pair 3-parted, sometimes rather acute and mucronate. Peduncles longer than the leaves. Flowers as large as in *C.* críspa. Sepals dull purple, ovate-lanceolate, velvety externally. Tails of the carpels long. (*Tor. and Gray.*) In *C.* Viórna the sepals do not divaricate, except in their recurved tips; while in *C.* reticulàta the sepals expand in the mode of those of *C.* Viticélla. A side view of a flower less expanded resembles more the flower of *C.* cylíndrica, but the cylindrical portion is shorter. The flowers (sepals) of the two are different in colour. The leaves of *C.* reticulàta are veined, as is implied in the specific name. The stems are scarcely ligneous.

11. Clématis reticulàta.

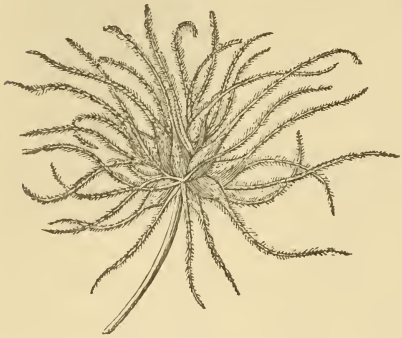
♃ 10. *C.* HENDERSO'N*II* Chandler. Henderson's Clematis.

*Engravings.* Our *figs.* 12. and 13.

*Spec. Char., &c.* Peduncles 1-flowered, much longer than the petioles of the leaves. Sepals long, wrinkled, reflexed. Leaves bipinnate, leaflets ovate-acuminate. A deciduous climber. Hybrid. Height 8 ft. to 10 ft. Cult. 1835. Flowers bluish purple; June to September. Fruit white.

The stems and foliage bear a general resemblance to those of *C.* Viticélla, while the flowers, in magnitude and colour, and the leaflets in shape and veining, resemble those of *C.* integrifòlia; but the sepals expand much wider, in the manner of those of *C.* Viticélla. This plant is apparently a hybrid between *C.* Viticélla and *C.* integrifòlia, having the flowers of the latter, and the leaves and stems of the former. It was raised by Mr. Henderson,

nurseryman, of Pine-apple Place, and first flowered in the nursery of Mr. Chandler, by whom it was named. It may fairly be described as one of the most ornamental



12. Fruit of Clématis Hendersonii.

species of this section, from the largeness of its flowers, their long footstalks, which make them stand out distinctly from the foliage, the great profusion with which they are produced, and the long time the plant continues to produce them. Layers.

13 Clématis Hendersònii.

## § ii. *Viticélla* Dec.

*Derivation.* From *viticula*, a small vine; on account of the plants climbing like *Vitis vinifera L.*

*Sect. Char.* Involucre wanting. Tail of the pericarp (that is, of the carpel) short, beardless. Leaves ternate, or decompound. Stems climbing. (*Don's Mill.*, i. p. 9.) Deciduous.

### ⅄ 11. *C.* FLO'RIDA *Thun.* The florid, *or showy-flowered*, Clematis.

*Identification.* Thunb. Fl. Jap., 240.; Dec. Prod., 1. 8.; Don's Mill., 1. p. 9.
*Synonymes.* *Atrágene* índica *Desf.*; *Atrágene* flórida *Pers.*; Clématite à grandes Fleurs, *Fr.*; grossblüthige Waldrebe, *Ger.*
*Engravings.* Sims Bot. Mag., t. 834.; Andr. Bot. Rep., t. 402.; and our *fig.* 14.

*Spec. Char., &c.* Peduncles 1-flowered, longer than the leaves. Leaves ternately decompound; leaflets ovate, acute, quite entire. Sepals oval-lanceolate, much pointed. (*Don's Mill.*) A deciduous climber. Japan. Height 10 ft. to 12 ft. Introduced in 1776. Flowers white; June to September. Fruit ?.

*Varieties.*

- ⅄ C. *f.* 2. *flòre plèno* Hort. has the stamens changed into floral leaves, which may be denominated petals. It is very handsome, but the petals have frequently a tinge of green, which renders it less ornamental than the single species, in which the centre of the flower is comparatively inconspicuous, while the sepals are large, and of a pure white.
- ⅄ C. *f.* 3 *flòre plèno violàceo*; *C.* f. Siebóldii D. Don in *Sweet's Brit. Flow.-Gard.* 2d ser. p. 396.; *C.* Siebóldii Paxton's Mag. Bot.

p. 147.; *C.* bícolor *Hort.*; and our *fig.* 14.; is in all respects the same as the last, except that the petals, or centre of the flower, are of a rich violet colour, approaching to purple. It was sent from Japan to Europe by Dr. Sieboldt; and introduced into England in 1836. It is a most ornamental plant, and as hardy and easily propagated as the other variety or the species.

14. *C.* flórida fl. pl. violàceo.

15. *Clématis* flórida.

The stem is slender and striated; climbing to the height of 15 ft. or upwards when it is trained to a wall with a favourable exposure, though never becoming very woody. The flowers are large and handsome, either in a single or double state; and these, with the neatness of its foliage, and the slenderness of its stems and branches, give it such an air of elegance, that no lover of plants should be without it, who has a garden in which it will thrive. North of London it requires a wall; and in Scotland, as well as in France and Germany, it is generally kept in the green-house. A mode of pruning plants of this species, by cutting them down to the ground annually, though not generally practised, is said to produce vigorous shoots and fine flowers. This species never ripens seeds in England, and is therefore only propagated by layers.

℞ 12. *C.* CÆRU'LEA *Lindl.* The blue, *or violet-flowered*, Clematis.

*Identification.* Lindl., in Bot. Reg., t. 1955.
*Synonymes.* C. azùrea grandifloòra *Sieb.*; *C* grandifloòra *Hort.*
*Engravings.* Bot. Reg., t. 1955.; and our *fig.* 16.

*Spec. Char., &c.* Leaves spreading, hairy, ternate. Segments ovate-acute, entire. Peduncles 1-flowered. Sepals 6 to 8, oblong, lanceolate, acute, membranaceous. Margin distended. (*Lindl.*) A deciduous climber. Japan. Height 10 ft. to 12 ft. Introduced in 1836. Flowers blue; June and July. Fruit ?.

A free-growing and profuse-blooming plant, with the habit of *C.* flórida. Flowers large, violet-coloured, with deep purple stamens. It differs from *C.* flórida in the colour, delicacy, and transparency of its blossoms, and also in its leaves being only once ternate, and in the sepals not touching and overlapping each other at the edges. Culture and propagation as in *C.* flórida.

16. Clématis cærùlea

℞ 13. *C.* VITICE'LLA *L.* The Vine-Bower Clematis.

*Identification.* Lin. Sp., 762.; Dec. Prod., 1. p. 9.; Don's Mill., 1. p. 9.
*Synonymes.* Viticélla deltòidea *Mœnch*; the red-flowered Lady's Bower, *Gerard*; Italienische Waldrebe, *Ger.*
*Engravings.* Flor. Græc., t. 516.; Bot. Mag., t. 565.; and our *fig.* 17.

*Spec. Char., &c.* Peduncles 1-flowered, longer than the leaves. Leaves ternately decompound, lobes or leaflets entire. Sepals obovate, spreading. (*Don's Mill.*) A deciduous climber. South of Europe, in hedges, on calcareous soil. Height 10 ft. to 15 ft. Introduced in 1569 Flowers blue

or purple; July to September. Fruit white; ripe in October. Decaying foliage black or brown.

*Varieties.*

- C. *V.* 1 *cærùlea.* — Flowers blue.
- C. *V.* 2 *purpùrea.* — Flowers purple.
- C. *V.* 3 *múltiplex* G. Don. *C.* pulchélla *Pers.* — Flowers double, blue. This variety produces more robust, more extended, and fewer shoots, than the single-flowered blue or purple varieties.
- C. *V.* 4 *tenuifòlia* Dec., *C.* tenuifòlia lusitánica *Tourn.*; and
- C. *V.* 5 *baccàta* Dec., *C.* campaniflòra *Hort.*; are varieties which we have not seen.

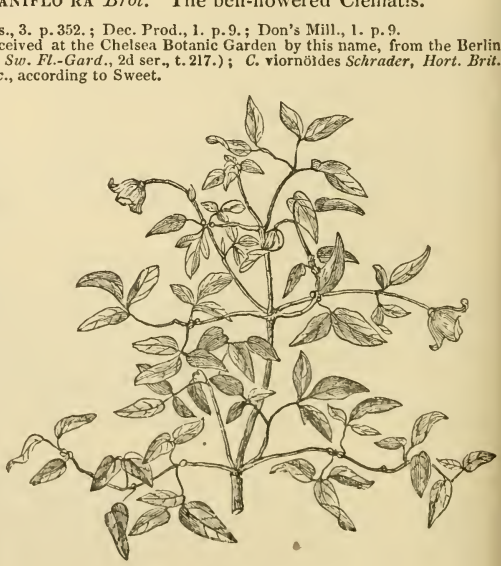
*C.* Viticélla, and all its varieties, are tolerably robust and vigorous in their growth, and decidedly ligneous; though plants, individually, do not endure many years. They are, perhaps, the most beautiful and most estimable of all the kinds of clematis, for the purposes of floral decoration. For the mere covering of bowers and other objects, they are, however, less suited than *C.* Vitálba and *C.* Flámmula; as these grow faster, extend farther, and each yields a greater aggregate of herbage, and so covers better: but none of them can vie with C. Viticélla and its varieties in beauty; more especially with the single purple and the single blue.

17. Clématis Viticélla

### 14. *C.* CAMPANIFLO'RA *Brot.* The bell-flowered Clematis.

*Identification.* Brot. Flor. Lus., 3. p. 352.; Dec. Prod., 1. p. 9.; Don's Mill., 1. p. 9.
*Synonymes.* *C.* viornòides, received at the Chelsea Botanic Garden by this name, from the Berlin Botanic Garden (*D. Don*, in *Sw. Fl.-Gard.*, 2d ser., t. 217.); *C.* viornòides *Schrader, Hort. Brit.* No. 28757.; *C.* parviflòra *Dec.*, according to Sweet.
*Engravings.* Lod. Bot. Cab., 987.; Sw. Br. Fl.-Gard., 2d series, t. 217.; and our *fig.* 18.

*Spec. Char., &c.* Peduncles 1-flowered, somewhat longer than the leaves. Leaves biternately decompound; leaflets entire, or 3-lobed. Sepals half-spreading, dilated at the apex, wavy. (*Don's Mill.*) A deciduous suffrutescent climber of vigorous growth. Portugal, in hedges. Height 11 ft. to 15 ft. Introd. 1810. Flowers white, slightly tinged with purple; July and August. Fruit white. Decaying foliage dark brown.



18 Clématis campaniflòra.

*Variety.*

- C. *c.* 2 *parviflòra.* *C.* parviflòra *Fisch. of Göttingen.* — Flowers rather smaller than in the species, sepals crisped at the edges. H. S.

The habit of growth of this plant is that of *C.* Viticélla, to which it also comes nearest in affinity, but, though less woody, its shoots are much more robust; the much smaller and white flowers, and pointed sepals connivent (that is, lying close together) below, will readily distinguish it. It seldom ripens wood in England, but is readily propagated by layers.

### 15. *C.* CRI'SPA *L.* The curled-*sepaled* Clematis.

*Identification.* Lin. Sp., 765.; Dec. Prod., 1. p. 9.; Don's Mill., 1. p. 9.
*Synonyme.* *C.* flòre crispo *Dill. Elth.*
*Engravings.* Dill. Elth., 1. t. 73. fig. 84.; Bot. Mag., 1982.; and our *fig.* 19.

19. Clématis crispa.

*Spec. Char., &c.* Peduncles 1-flowered, shorter than the leaves. Leaves entire, 3-lobed, or ternate, very acute. Sepals connivent at the base, but reflexed, and spreading at the apex. (*Don's Mill.*) A deciduous climber. Virginia to Florida. Height 3 ft to 5 ft. Introduced in 1726. Flowers purple; July to September. Fruit brownish; ripe in October.

Leaves glabrous, or slightly hairy. Flowers one third smaller than in *C.* Viórna, bright purple. Tail of the carpels thick and rigid, about half an inch long. (*Tor. and Gray.*) The flowers of this species are pretty, but perhaps never produced in sufficient quantity to render it highly decorative. The sepals have their tips reflexed, and waved with transverse wrinkles. The stems are weak, and do not generally rise higher than 3 or 4 feet. The plants frequently die down to the ground, so that this species requires to be treated more as herbaceous than ligneous. It ripens seeds plentifully.

## § iii. *Cheirópsis* Dec.

*Derivation.* From *cheir*, the hand, and *opsis*, resemblance; in allusion to the form of the bracteas.

*Sect. Char.* Involucre in the form of a calyx, from two joined bracteas situated at the top of the peduncle just under the flower. Tails of pericarps bearded. Climbing or rambling shrubs, with simple or ternate leaves. The old petioles persistent, and the new leaves and the peduncles produced in clusters from the axils of these. (*Dec. Syst.*, i. 162.) Evergreen.

### 16. *C.* CIRRHO`SA *L.* The tendriled-*petioled* Clematis.

*Identification.* Lin. Sp., 766.; Dec. Prod., 1. p. 9.: Don's Mill., 1. p. 9.
*Synonymes.* Atrâgene cirrhòsa *Pers. Syn.* 2. p. 98.; Traveller's Joy of Candia, and Spanish Traveller's Joy, *Johnson's Gerard*; Spanish wild Climber, *Parkinson*; the evergreen Clematis; Clématite à Vrilles, Clématite toujours verte (*Bon Jard.*), *Fr.*; einfachblättrige (simple-leaved) Waldrebe, *Ger.*
*Derivation.* The word cirrhòsa, which means cirrhose, or tendriled, is applied to this species from the peculiarly grasping and tendril-like action of its petioles, which retain their hold even after the leaflets have fallen. The French word Vrilles signifies tendrils; and the German word einfach alludes to its comparatively simple leaves.
*Engravings.* See the Varieties.

*Spec. Char., &c.* Peduncle 1-flowered, with an involucre. Leaves simple, or variously divided; evergreen. An evergreen climber. Spain and the Balearic Isles. Height in British gardens, in the climate of London, in a warm situation, against a wall, 5 ft to 10 ft. Introduced in 1596. Flowers greenish or yellowish white; March and April. Fruit ?. Foliage of the broad-leaved varieties forming a fine dark green mass.

*Varieties.*

♣ C. *c.* 2 *pedicellàta* Dec.; *C.* pedicellàta *Sweet's Hort. Brit.* p. 2., and *Don's Mill.* i. p. 9.; *C.* baleárica *Pers.*; *C.* cirrhòsa *Sims B. Mag.* t. 1070.; and our *fig.* 20.; has the pedicel between the involucre and the flower considerably longer than in the species.

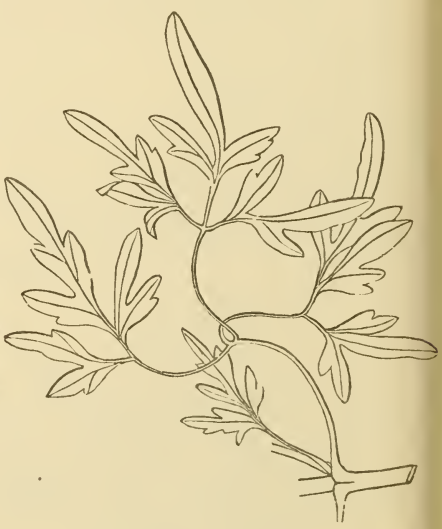
20. Clématis cirrhòsa pedicellàta.

21. C. cirrhòsa angustifòlia

♣ C. *c.* 3 *angustifòlia. C.* baleárica *Rich. Bot. Mag.* t. 959., and our *fig.* 21.; *C.* calycìna *Ait.*; *C.* polymórpha *Hort.* Clématite de Mahon, *Fr.* — The leaves of this variety vary exceedingly, from those shown in *fig.* 23. of the natural size, taken from a plant in the Horticultural Society's Garden, to those shown in *fig.* 22., reduced from Smith's *Flora Græca.* Introduced into England by M. Thouin, in 1783.

The varieties are all elegant evergreen climbing shrubs, rising to the height of from 6 ft. to 10 ft., and branching freely, so as to become, in two or three years, very thick bushy plants.

22. Clématis cirrhòsa angustifòlia.



23. Clématis cirrhòsa angustifòlia.

The leaves vary from simple to ternate; and from being entire to being deeply cut. The flowers appear at the end of December, or the beginning of January, and continue till the middle or end of April. They are pendulous and bell-shaped, the mouth being of the breadth of a shilling, or more. Their colour is greenish white, with some purple on the inside. The sepals are downy without, and smooth within. In its native country it is said to climb up and overwhelm the trees; but in England it is a weak plant, not very readily kept. In nurseries it is generally cultivated in pots, and kept in a green-house, or in a cold-frame. The principal beauties of this species consist in its bright evergreen verdure, and in the earliness of its flowering in spring; and these properties may be best obtained by training it against a wall with a southern aspect. Layers and cuttings.

## § iv. *Anemoniflòra.*

*Derivation.* From the flowers being like those of the *Anemòne sylvéstris.*

*Sect. Char.* Peduncles axillary, 1-flowered, aggregate, not bearing an involucre. Carpel with a feathery tail. Leaves deciduous.

### 17. *C.* MONTA'NA *Ham.* The Mountain Clematis.

*Identification.* *C.* montàna *Ham. MSS.*; Dec. Prod., 1. p. 9.; Royle, p. 51.
*Synonymes.* *C.* anemoniflòra *D. Don Prod. Fl. Nepal.* p. 192., *Don's Mill.* 1. p. 9.
*Engravings.* Wall. Pl. Asiat. Rar., 3. p. 12. t. 217.; Swt. Br. Fl.-Gard., 2. s. t. 253.; and our *figs.* 24. and 25. *Fig.* 25. is from the plant in the Hort. Soc. Garden, and *fig.* 24. from a specimen of that at Montreal, Kent.

*Spec. Char., &c.* Peduncles 1-flowered, not bracteated, several together. Leaves ternately parted, the segments ovate-oblong, acuminate, toothed, the teeth in the mode of incisions. Sepals elliptic-oblong, mucronulate, spreading. (*D. Don.*) A deciduous climber. Himalayan Mountains at 5000 ft. to 7000 ft. elevation. Height 10 ft. to 15 ft., or in sheltered situations 30 ft. to 50 ft. Introduced in 1831. Flowers white; April in Nepal, May in England. Fruit white; ripe in August. Decaying foliage brown, and dropping more freely than in most of the other kinds.

A highly ornamental species. The plant is large and branching; the bark thick, ash-coloured, and deciduous. Leaves numerous, pale green. Flowers numerous, about the size and form of those of *Anemòne sylvéstris L.*, borne several together, each upon a separate, upright, slender peduncle, about 3 in. long. Sepals 4, 1 in. long, pure white, faintly stained with pink outside at the base. Styles clothed with long white silky hairs; from which it may be inferred that this species will have its fruits terminated with feathery tails, in a state of maturity. In the climate of England it proves to be quite hardy, and seems to flourish as well as on its native mountains. It grows with great vigour in a loamy soil, flowers profusely early in the season, and is readily increased by layers. A very desirable species.

24. Clématis montàna.

25. Clématis montàna.

*Other Species of Clématis.*—There are several other species of Clématis described in books, some of them as introduced, and others as not yet in cultivation in Britain; but we have refrained from describing any species of which we have not seen living plants. In Torrey and Gray's *Flora of North America*, C. *holoseríceа* Pursh, C. *ligusticifòlia* Nutt., C. *Drummóndii Tor. & Gray*, C. *parviflòra* Nutt., C. *lasiántha* Nutt., C. *linearíloba* Dec., and C. *Pítcheri Tor. & Gray*, are described as woody species, none of which, even by name, are yet in British gardens. C. *pubéscens*, *vitifòlia*, *Buchan*iàna, and some others, mentioned by Drs. Wallich and Royle, are yet to introduce from the Himalayas; and there are several names in DeCandolle's *Prodromus* of which living plants are not in our gardens.

## Genus II.

*A*TRA'GENE *L.* The Atragene. *Lin. Syst.* Polyándria Polygýnia.

*Identification.* Lin Gen., p. 615.; Don's Mill., 1. p. 10.
*Synonymes.* Clématis *Lam.* and *Dec.*; Atragene, *Fr.* and *Ger.*
*Derivation.* The name of *A*trágene appears to be taken from two Greek words; *athros*, pressed, and *genos*, birth; alluding, as it is supposed, to the manner in which the branches press against or clasp the trees that support them. It was first used by Theophrastus, and was by him applied to Clématis Vitálba *L.*

*Gen. Char.* *Involucre* none. *Sepals* 4, somewhat induplicate in the bud. *Petals* numerous, shorter than the sepals. *Cariopsides* (carpels) terminated by a bearded tail. *Cotyledons* approximate in the seed. (*Don's Mill.*)

*Leaves* compound, opposite, generally exstipulate, deciduous; leaflets variously cut. *Flowers* axillary, pedunculate; purple, blue, or white. *Climbing shrubs*, natives of Europe and North America.

The atragenes differ from the clematises in producing leaves and one flower from the same bud contemporaneously; whereas in most clematises the flowers are produced upon wood developed previously to their appearance, and during the same season. Hence the winter buds of *A*trágene are larger than those of *C*lématis, from their including the flower as well as the leaves of the succeeding year. In atragenes the leaves are less divided than in many of the species of *C*lématis, and they are always divided ternately. All the species of *A*trágene described in this work have petioles, which not only clasp objects, like those of *C*lématis, but maintain the hold for more than the season, like the vine. All extremely interesting from the beauty of their blossoms. The culture is the same as in *C*lématis, and the propagation generally by layers.

### 1. *A*TRA'GENE ALPI'NA *L.* The Alpine Atragene.

*Identification.* Lin. Sp., 764.; Don's Mill., 1. p. 10.
*Synonymes.* Clématis cærùlea *Bauh.*; *A*trágene austrìaca *Scop.* and *Bot. Mag.*; *A*trágene clematìdes *Crantz*; Clématis alpìna *Mill. Dict.* No. 9.; *C.* alpìna *Dec. Prod.* 1. p. 10.; Atragène des Alpes, *Fr.*; Alpen Atragene, *Ger.*
*Engravings.* Bot. Rep., t. 180.; Bot. Mag., t. 530.; and our *fig* 26.

*Spec. Char., &c.* Peduncles 1-flowered, longer than the leaves. Leaves biternate; leaflets ovate-lanceolate, acuminated, serrate. Petals somewhat spathulate, blunt. (*Don's Mill.*) A deciduous climber. South of Europe, on mountains, in calcareous soils. Height 8 ft. Introduced in 1792. Flowers blue; May to July. Fruit white; ripe in August. Decaying leaves brownish, and in general parting more freely from the stems than in *C*lématis.

*Varieties.* DeCandolle mentions its varying with white flowers; and *A.* sibìrica *Lin.*, described below as a species with yellowish white flowers, appears to us nothing more than a variety of *A.* alpìna.

The stems are numerous, branching, weak, forming knots at the joints where the leaves and flowers are protruded. One flower, on a longish scape, springs from between the leaves. The sepals are twice the length of the petals, and are blue on both sides. The petals are small, of a dirty white, and in general 12 in number. Very ornamental. Layers.

26. Atrágene alpìna.

### ♃ 2. *A.* (A.) SIBI'RICA *L.* The Siberian Atragene.

*Identification.* Sims, Bot. Mag., t. 1951.; Don's Mill., 1. p. 10.
*Synonymes.* Atrágene alpìna *Gmel. Sib.* 4. p. 194., *Pall. Flor. Ross.* 2. p. 69.; Clématis sibírica *Mill. Dict.* No. 12., and *Dec. Prod.* 1. p. 10.
*Engravings.* Sims, Bot. Mag., t. 1951.; and our *fig.* 27.

*Spec. Char., &c.* Peduncles 1-flowered, almost equal in length with the leaves. Leaves biternate; leaflets oblong-lanceolate, acuminated, serrated. Petals emarginate at the apex. (*Don's Mill.*) A deciduous climber. Siberia, on mountains. Height 6 ft. to 12 ft. Introduced in 1753. Flowers white; June and July. Fruit white; ripe in August. Decaying leaves brownish.

27. Atrágene (a.) sibírica.

*Variety.* A blue-flowered variety of this species is mentioned in *Bot. Mag.*, t. 1591., which is probably the *A.* ochoténsis of Pallas, or possibly nothing more than *A.* alpìna *L.*

There is a considerable similarity in this to the last, in foliage and habit of growth; but it is less robust and less branchy; its branches are more ligneous-looking, and the segments of the leaves longer. The calyxes of the flower are white, longer, and with the tips rather connivent than spreading. The bark and foliage are of a lighter colour, and the flowers longer than those of *A.* alpìna; and the latter are perhaps less numerous.

### ♃ 3. *A.* AMERICA'NA *Sims.* The American Atragene.

*Identification.* Sims, in Bot. Mag., t. 887.; Don's Mill., 1. p. 10.
*Synonyme.* Clématis verticillàris *Dec. Prod.* 1. p. 10., *Tor. & Gray*, 1. p. 10.
*Engravings.* Bot. Mag., 887.; and our *fig.* 28.

*Spec. Char., &c.* Peduncles 1-flowered; leaves whorled, in fours, ternate; leaflets stalked, cordate lanceolate, acuminated, entire or somewhat lobed or serrated. Petals acute. (*Don's Mill.*) A deciduous climber. Vermont to Carolina, on mountains and rocky places. Height 10 ft. to 15 ft. Introduced in 1797. Flowers purplish blue; May to July. Fruit white; ripe ?. Decaying leaves dark brown.

*Variety.*
♃ A. *a.* 2 *oblìqua* Dou. MS.—Leaflets bluntly serrated.

28. Atrágene americàna.

This species is distinguishable from all the other Clematídeæ described in this work, by the peculiarity of its leaves being disposed, not oppositely in alternately decussating pairs, but in whorls of four. This is an anomalous characteristic, which DeCandolle has expressed by his specific epithet verticillàris. The flowers are very large, and campanulate. Sepals oblong-lanceolate, bright purplish blue. (*Tor. and Gray.*) Layers.

*Other Species and Varieties of* Atrágene. — A. *ochoténsis* Pall. we consider as a variety of *A.* sibírica *L.* A. *columbiàna* Nutt., *C.* colùmbiàna *Tor. & Gray*, i. p. 11., has ternate leaves, and pale blue flowers smaller than those of *A.* americàna. It is a native of the Rocky Mountains, but has not yet been introduced.

## Tribe II. *PÆONIA'CEÆ* Dec.

*Trib. Char.* At once distinguishable from Clematídeæ, by the character of the anthers opening to admit the escape of the pollen on the side next the ovaries. In Clematídeæ, the anthers open on the side outward to the ovaries. The æstivation is also imbricate, and the carpels from one-seeded

to many-seeded. Suffruticose deciduous shrubs, of low growth, natives of temperate climates.

*Leaves* compound, alternate or opposite, stipulate, deciduous, but without possessing a clasping power. *Flowers* very large in Pæonia, very small in Xanthorhiza; and the following are the distinctive characteristics of these genera: —

*Pæo'nia* L. Sepals persistent. Petals orbicular, sessile.

Xanthorhi'za *L.* Sepals deciduous. Petals 2-lobed, unguiculate.

## Genus I.

### *PÆO'NIA* L. The Pæony. *Lin. Syst.* Polyándria Di-Pentagýnia.

*Identification.* The term Pæonia was applied by the Greeks to these plants, which have continued to bear that name ever since.

*Synonymes.* Peony, Piony; Pivoine, *Fr.*; Gichtterrose, and Päonie, *Ger.*; Rosa del Monte, *Span.*; Peonia, *Ital.*

*Derivation.* The term Pæonia is generally said to have been given by Hippocrates and Dioscorides, in commemoration of Pæon, the physician who first used it in medicine; but Professor Don thinks it more probable that it is derived from Pæonia, a mountainous country of Macedonia, where some of the species grow wild. Gichtterrose, *Ger.*, signifies the gouty rose, from the knobby or gouty appearance of the roots of the herbaceous species.

*Gen. Char.* *Calyx* of 5 leafy, unequal, permanent sepals. *Petals* from 5 to 10, somewhat orbicular. *Stamens* numerous. *Disk* fleshy, girding the ovaries. *Carpels* follicular, from 2 to 5, large, many-seeded, terminated with thick bilamellate stigmas. *Seeds* rather globose, shining.

*Leaves* compound, alternate, biternate or bipinnate. *Flowers* large, rosy, or rosy and white, usually with a strong disagreeable smell. A suffruticose shrub. Height from 3 ft. to 10 ft. Native of China and Japan.

There is but one ligneous species, *P. Moútan;* but there are several varieties; all undershrubs, which never attain a great height, and the wood of which always retains a herbaceous character, with a large pith. The roots are ramose rather than tuberous. The whole plant is narcotic and poisonous. The varieties are all beautiful, and hardy in most parts of Great Britain; though, from vegetating early, they commonly suffer from spring frosts.

#### ♃ 1. *P. Mou'tan* Sims. The Moutan, *or Tree*, Pæony.

*Identification.* Sims, Bot. Mag., t. 1154; Dec. Prod., 1. p. 65.; Don's Mill., 1. p. 65.

*Synonymes.* *Pæònia* arbòrea *Donn Hort. Can.*; *P.* suffruticòsa *Bot. Rep.*; Pivoine Moutan, and Pivoine en Arbre, *Fr.*; baumartige Gichtterrose, *Ger.*; Hoa Ouang, and Pé-Leang-Kin, *Chinese.*

*Derivation.* The word Moutan has been applied to this species of pæony, in China, for above 1400 years. *P.* arbòrea and *P.* suffruticòsa signify the tree and the sub-shrubby pæony. The German name signifies the tree-like gouty rose. The Chinese name Hoa-Ouang signifies the king of flowers, alluding to the beauty of the plant; and Pé-Leang-Kin, a hundred ounces of gold, in allusion to the high price which some of the varieties bear in China.

*Spec. Char., &c.* Segments of leaves oval-oblong, glaucous underneath. Carpels 5, villose. (*Don's Mill.*) A deciduous suffrutescent bush. China. Height 3 ft. to 6 ft. Introduced in 1787. Flowers pink; May. Fruit brownish green; ripe in September. Decaying leaves brown or black.

*Varieties.*

♃ P. M. 1 *papaveràcea* Andrews. Bot. Rep., t. 463.; Lod. Bot. Cab., 547.; Bot. Mag., 2175.; and our *fig.* 29.—Petals from 8 to 13, white, with a purple spot at the base of each. Capsules altogether enclosed in the urceolus, or disk. Introduced in 1805. Professor Don remarks (*Sw. Br. Fl.-*

29. *Pæonia Moutan papaveràcea.*

*Gar.*, 2d ser., 238.) that *P. M. p*apaverácea appears to be really the normal form of the species, as the late Mr. George Anderson suggested in his paper on the subject in the *Linnæan Transactions*, vol. xii.

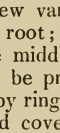
P. M. 2 *Bánksii Andrews.* Bot. Rep., t. 448.; Bot. Reg., 379.; Bot. Mag., t. 1154.; and our *fig.* 30.—Flowers double. Petals slightly tinged with blush, becoming nearly white at the edges, marked at the base with purplish red. In the centre of the flower are some elongated petals, which sometimes appear to rise from amongst the germens. Cultivated in 1787.

30. *Pæònia Moútan* Bánksii.

*Other Varieties.* Upwards of twelve are described in the first edition of this work, and the number is continually increasing, in consequence of cross fecundation with one another, and with the herbaceous species. They are all very beautiful, and well deserving of cultivation.

The *Pæònia Moútan*, in a sheltered situation, will attain the height of from 6 ft. to 10 ft. in ten years: and no plant can be a more gorgeous ornament of the garden than such a bush, abounding as it does in leaves striking from their branched character and numerous segments, and in very magnificent flowers of extraordinary size; both leaves and flowers being produced early in the spring. On its first importation, this plant was grown in sandy peat; but it has since been found to thrive best in deep rich loamy soil. An open situation is preferable, both on account of maturing the wood and leaves, and for displaying the flowers to advantage; but the plant must be sheltered from the cold spring winds, unless it is intended to cover it, when it is in flower, with a movable glass or canvass case. The protection given to this plant is necessary, not so much to prevent it from being injured during winter (for it will bear the winters of Paris without any protection, if the wood has been properly ripened), as to protect the tender leaves and flowers when they first appear, in April and May, from being blackened by the frost. Seeds are frequently produced from which new varieties are raised, and any variety may be increased by division of the root; by grafting on the tubers of herbaceous pæonies, any time from the middle of September to the middle of March; by budding, a mode said to be practised by the Chinese; by layers, which is the most general mode; by ringing a branch beneath each bud, and then pegging down the branch, and covering it with soil; and by cuttings. The details of these modes of propagation will be found in the first edition of this work.

## Genus II.



XANTHORHI'ZA *L.* The Yellow-Root. *Lin. Syst.* Polyándria Mono-Tri-gýnia.

*Gen. Char. Calyx* of 5 deciduous sepals. *Petals* 5, of two roundish lobes raised on a pedicel. *Stamens* 5-10. *Ovaries* 5-10. *Carpels* 2—3-seeded, but usually solitary from abortion. (*Don's Mill.*, i. p. 65.) — There is only one species known.

*Leaves* compound, opposite, stipulate, deciduous; pinnately divided, toothed, and serrated. *Flowers* in racemes, axillary, compound, appearing with the leaves.

1. X. *Apiifo'lia* *L'Hérit.* The Parsley-leaved Yellow-Root.

*Identification.* L'Hér. Stirp. nov., p. 79. t. 38.; Dec. Prod., i. p. 65.; Don's Mill., 1. p. 65.; Tor. and Gray, 1. p. 40.
*Synonymes.* Xanthorhìza *a*piifòlia; Zanthorise à Feuilles de Persil, *Fr.*; Sellerie-blättrige Gelbwurz, *Ger.*
*Derivation.* From the Greek words *xanthos*, yellow, and *rhiza*, a root; applied from the deep yellow colour of the roots. The French name needs no explanation; and the German is a literal translation of the English one.
*Engravings.* Lam. Ill., t. 854.; Bot. Mag., 1736.; and our *fig.* 31.

*Spec. Char., &c.* Flowers minute, dark purple, often by abortion polygamous. A low, suffrutescent, deciduous shrub. Flowers dark purple; May. Height 2 ft. to 3 ft. Pennsylvania. Introduced in 1776. Decaying leaves yellowish or brown, dropping in September.

A small shrub with yellow creeping roots, which attain a large size, and throw up numerous suckers; with irregularly pinnate leaves, branched racemes, and small purplish flowers (which are usually unisexual from abortion) rising from the scaly buds. The flowers appear early in May, and continue a month or upwards before they drop off. We have never heard of its ripening seeds in Europe; nevertheless, this may have occurred, and been overlooked, from the inconspicuousness of the shrub, and the smallness of its fruit. Suckers, or division of the root.

31. Xanthorhìza *a*piifòlia.

## Order II. WINTER*A'CEÆ.*

*Ordinal Character.* *Calyx* of 2—6 deciduous sepals, and 2 to many petals; the sepals and petals, when more than two, disposed ternately. *Carpels* whorled, very rarely solitary from abortion.—Evergreen shrubs, or low trees, chiefly natives of warm climates.

*Leaves* simple, alternate, stipulate, evergreen; full of pellucid dots, and coriaceous. Properties aromatic and stimulant. Illícium is the only genus of this order which contains species that will stand out in the open air in Britain.

### Genus I.

ILLI'CIUM *L.* The Illicium, *or Aniseed Tree.* *Lin. Syst.* Polyándria Polygýnia.

*Identification.* Lin. Gen., 611.; Tor. and Gray, 1. p. 42.; Dec. Prod., 1. p. 77.; Don's Mill., 1. p. 78.
*Synonymes.* Badiane, or Anis-étoilé, *Fr.*; Sternanis, *Ger.*
*Derivation.* The generic name Illicium is formed from the Latin word *illicio*, to allure, on account of the agreeable aromatic smell of all the species. It is called the Aniseed Tree, from its smell bearing a strong resemblance to that of aniseed. Badiane appears to be an aboriginal French word; Anis-étoilé, and Sternanis, signify literally the starry anise, and may allude to the starry disposition of the parts of the flower and of the capsules.

*Gen. Char.* *Calyx* of 3-6 petal-like sepals. *Carpels* stellately disposed, capsular, opening on the upper side, 1-seeded. (*Don's Mill.*, i. p. 79.)

1. Illi'cium florida'num *Ellis.* The Florida Illicium.

*Identification.* Lin. Mant., 395.; Dec. Prod., 1. p. 77.; Don's Mill., 1. p. 79.
*Synonymes.* The Florida Aniseed Tree, red-flowered Anise-seed Tree, *Mor. Hist.*; Badiane de la Floride, *Fr.*; unächter (spurious) Sternanis, *Ger.*
*Engravings.* Bot. Mag., 439.; Lod. Bot. Cab., t. 209.; and our *fig.* 32.

*Spec. Char., &c.* Petals 27—30, dark purple, outer ones oblong, inner ones lanceolate. (*Don's Mill.*) An evergreen glabrous shrub. West

Florida to Louisiana, in swamps. Height 4 ft. to 6 ft. Introduced in 1766. Flowers dark reddish purple, with the odour of anise; April to June. Fruit none in England. Decaying leaves reddish brown, dropping in June.

A compact, many-stemmed, bushy, evergreen, slow-growing shrub, attaining, in the neighbourhood of London, the height of 6 or 8 feet or upwards, and flowering every year. The leaves are oblong-lanceolate, quite entire, pointed at both extremities, smooth, shining, and, in common with the whole plant, have a rich reddish hue. The flowers are numerous, solitary, and terminal; and bear some general resemblance to those of Calycánthus flóridus. The manner in which the plant is propagated in the London nurseries is, generally, by forming stools of it in a cold-pit, and laying down the shoots, which require two years to root sufficiently to admit of their being separated from the parent plant; but it is sometimes propagated by cuttings both of the young and of the old wood. This very handsome evergreen shrub is sufficiently hardy to have resisted the winter of 1837-8, in several situations in the climate of London.

32. Illicium floridanum.

## Order III. MAGNOLIA'CEÆ.

*Ord. Char.* *Calyx* of 3 deciduous sepals. *Corolla* of 3—12 petals, disposed in threes. *Anthers* adnate, elongated. *Carpels* numerous, disposed along a spiked axis. *Leaves* destitute of pellucid dots, stipulate when young. *Stipules* convolute, and enclosing the unexpanded leaves. — Evergreen and deciduous trees and shrubs, chiefly natives of warm climates.

*Leaves* simple, alternate, stipulate, evergreen or deciduous; oblong, not dotted, more or less coriaceous, articulated distinctly with the stem, and, when expanding, rolled together like those of *Ficus*. *Flowers* large, mostly white or yellowish. *Seeds* roundish, large, red or brown. — The species hardy in British gardens are included under the genera Magnòl*ia* and Liriodéndron, the differential characters of which are as follows: —

Magno'l*ia* L. Carpel dehiscent; that is, opening to admit the escape of the seed.

Liriode'ndron *L.* Carpel indehiscent; that is, not opening to admit the escape of the seed.

### Genus I.

MAGNO'L*IA* L. The Magnolia. *Lin. Syst.* Polyándria Polygýnia.

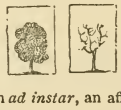
*Identification.* Lin. Gen., 690.; Dec. Prod., 1. p. 79.; Don's Mill., 1. p. 82.
*Synonymes.* Magnolie, *Fr.* and *Ital.*; Bieberbaum *Hart.*, and Magnolie *Willd.*, *Ger.*
*Derivation.* The name Magnòl*ia* was given to this genus by Linnæus, in honour of *Pierre Magnol*, professor of medicine, and prefect of the botanic garden at Montpelier. The German name Bieberbaum, beaver wood, is applied generically by Hartweg in the *Hortus Carlsruhensis*; but, in America, Beaver-wood appears to be applied only to M. glaúca.

*Gen. Char.* *Calyx* of 3 deciduous sepals, that resemble petals. *Corolla* of from 6—9 petals. *Stamens* numerous. *Pistils* numerous. *Carpels* disposed compactly in spikes, opening by the external angle, 1—2-seeded, permanent. *Seeds* baccate, somewhat cordate, pendulous, hanging out beyond the carpels by a very long umbilical white thread.

*Leaves* simple, alternate, stipulate, deciduous or evergreen; entire, large, oblong or oval, stipulate. *Flowers* terminal, solitary, large, odoriferous. *Seed* large, roundish, produced in conical strobiles. Trees and shrubs, natives of North America and Asia.

One of the species is a lofty evergreen tree; but the others are deciduous, and partly trees and partly shrubs. The seeds are mostly of a scarlet colour. The roots are branched, and yet but sparingly supplied with fibres. Magnolias may be cultivated in most parts of Britain, and of the middle and southern states of Europe; but, north of London and Paris, some of the species require protection during winter, or to be kept in the greenhouse. A deep sandy soil, and a situation sheltered from the north and east, will suit most of the species; though some, as M. glaúca, for example, thrive best in a moist peaty soil. Few of the species ripen seeds in England, but most of them do so in France. From these seeds, or from such as are imported, all the American species, except M. grandiflòra, are most frequently raised; but the species from Asia are increased by layers, as are occasionally some of the more rare of the American species. In no case whatever would we recommend purchasing any species of magnolia not grown in a pot; because plants so grown may be sent to any distance without injury to the roots, which are few and succulent, and easily damaged by exposure to the air and light. The hardy species of this genus are included in two sections, Magnoli*ástrum* and Gwillím*ia*.

## § i. *Magnoli*ástrum.



*Derivation.* *Magnòli*a; and *astrum*, from *ad instar*, an affixed particle, signifying likeness.

*Sect. Char.* American species, with one spathe-like bractea enclosing the flower-bud; ovaries approximate; anthers bursting outwards. (*Don's Mill.*, i. p. 83.)

### ♀ 1. Magno`lia grandiflo`ra *L.* The large-flowered Magnolia.

*Identification.* Lin. Sp., 755.; Dec. Prod., 1. p. 80.; Don's Mill., 1. p. 82.; Tor. and Gray, 1. p. 42.

*Synonymes.* Laurel-leaved Magnolia, the large-flowered evergreen Magnolia, the Laurel Bay, big Laurel, the large Magnolia; Laurier tulipier, *Fr.* in Louisiana; Magnolie à grandes Fleurs, *Fr.*; grossblumiger Magnolie, or Bieberbaum (Beaver-wood Tree), *Ger.*

*Engravings.* Mill. Ic., 2. t. 172.; the plate in vol. v. of Arb. Brit. 1st edit.; and our *fig.* 34.

*Spec. Char., &c.* Evergreen. Leaves oval-oblong, coriaceous, upper surface shining, under surface rusty. Flowers erect, 9—12 petals, expanding. (*Don's Mill.*) A large evergreen tree. North Carolina. Height in North America 60 ft. to 70 ft.; in England 20 ft. to 30 ft. Introduced in 1737. Flowers white, fragrant; June to September. Strobile brown, with scarlet seeds; ripe in October. Decaying leaves yellow and orange, dropping in June. Young wood green.

*Varieties.*

♀ *M. g.* 2 *obovàta* Ait. — Leaves obovate-oblong. Flowers expanded. (*Hort. Kew.*, iii. p. 329.) This seems to be the only variety found in a wild state. In British gardens it is a magnificent plant, the broad ends of its leaves forming a conspicuous feature, and distinguishing it readily from the original species, the leaves of which are pointed; but it does not flower freely.

♀ *M. g.* 3 *exoniénsis* Hort. M. g lanceolàta *Ait.*; M. g. stricta *Hort.*; M. g. ferrugínea *Hort.* *The Exmouth Magnolia.* (Bot. Mag., t. 1952.; Bot. Cab., t. 1814.; the plate in Arb. Brit., 1st edition, vol. v.; and our *fig.* 33.) — The leaves are oblong-elliptical, generally rusty

33. Magnòlia grandiflòra exoniénsis.

underneath. Flowers somewhat contracted. This is the most distinct of all the varieties of the species, and, on account of its flowering early and freely, the one best deserving of general culture. It forms a tall, fastigiate, elegant bush, or tree, and has attained the height of 30 ft., as a standard, at various places in the South of England.

♀ *M. g.* 4 *angustifòlia* Hort. — Leaves lanceolate, pointed at both extremities, wavy. A very distinct variety, introduced from Paris about 1825, which has not yet flowered in England.

♀ *M. g.* 5 *præ'cox* Andry.—Leaves oval-oblong. Flowers fully expanded. This is an early variety, introduced from Paris about 1830. The flowers are as large as those of any of the varieties, and they are produced from the end of May till the approach of winter.

*Other Varieties.* In consequence of the great demand for this species in the nurseries, many slight variations have been noticed by cultivators, and named as distinct. In the garden of the London Horticultural Society, in 1834, there were plants with the following names: — *M. g. vèra*, *M. g. latifòlia*, *M. g. exoniénsis var.*, and *M. g. rubiginòsa.* In the London nurseries are — *M. g. rotundifòlia* Swt., *M. g. ellíptica* Ait., and various others. In the nursery of M. Roy, at Angers, are 18 varieties, among which are included *M. g. longifòlia undulàta*, *M. g. exoniénsis à fleur demi-double*, *M. g. canaliculé*, *M. g. floribúnda*, *M. g. fòliis variegàtis*, &c. At Desio, near Monza, there is a variety called *M. g. magordénsis.*

*Selection of Varieties.* *M. g. obovàta* deserves the preference for the magnificence of its foliage; and *M. g. exoniénsis*, because it flowers early and freely; and because, from the fastigiate form of the tree, it is less liable to be injured by a heavy fall of snow; it seems also to grow faster than any of the other varieties. Where the tree is to be trained against a wall, *M. g. præ'cox* deserves the preference, on account of the largeness of its flowers, and because they appear early, and continue during the whole summer. *M. g. angustifòlia* deserves culture on account of its foliage, which

is quite distinct from that of all the other varieties. The species sold in the nurseries as the common broad-leaved Magnòl*ia* grandiflòra is frequently raised from American, French, or Italian seeds; and, hence, the plants, though they grow freely, do not flower for 20 or 30 years after being planted out. For this reason, when it is desired to have plants of the Magnòl*ia* grandiflòra which will flower early, those plants which have been raised by layers from flowering trees ought to have the preference; or the Exmouth, or some other variety, should be made choice of, because the varieties are always raised from layers.

In its native country, M. grandiflòra is a tree varying from 60 ft. to 100 ft., or upwards, in height; but in Europe, except in some situations in Spain and Italy, and a few in the South of England, it is chiefly to be considered as a wall tree.

34. Magnòl*ia* grandiflòra.

A deep sandy loam, dry at bottom, and enriched with vegetable mould or heath soil, seems to suit all the varieties of this species. When these are to be trained against a wall, any aspect may be chosen, except, perhaps, the north-east. To display the flowers to the greatest advantage, to a spectator walking in a direction nearly parallel to the wall, the ground plan of the latter should be curvilinear, by which means a direct or front view of a considerable portion would be brought before him. In the London nurseries, propagation is generally effected by forming stools either in warm situations in the open air, to be protected during winter, or in cold-pits. The shoots are laid down in autumn, and require two years to become sufficiently rooted for separation; they are then potted, and kept in pits or under glass during winter, and set in the open air, in a shady place, during summer, till wanted for final planting. M. grandiflòra is also occasionally raised from American seeds. In planting, the ball should be carefully broken by the hand, and the roots spread out in every direction, and covered with heath mould, or a mixture of leaf mould and sandy loam. The

soil ought to be made firm to the fibrous roots, not by treading, but by abundant watering, and, if the plant be large, by fixing with water; that is, while the earth is being carefully put about the roots by one man, another should pour water from a pot held 6 ft. or 8 ft. above it, so that the weight of the water may wash the soil into every crevice formed by the roots, and consolidate it there. Shading will be advisable for some weeks after planting. If the Exmouth variety be chosen, layers will produce flowers in a year or two after being separated from the parent plant, if kept in pots; but, when they are planted out, and grow freely, so as to make shoots of 2 or 3 feet every season, they will probably not flower for three or four years. Whether the tree be against a wall or trellis, or treated as a standard, all the pruning it will require, after it has begun to grow freely, will be, to cut out the stumps from which the flowers or the strobiles have dropped off, and any dead or decaying wood, and any branches which cross and rub on each other. Magnolias against a wall require very little protection, even when young; and this can easily be given by mulching the ground at the roots, and covering their branches with a mat, or with the fronds of the spruce fir.

### ☨ 2. M. GLAU'CA *L.* The glaucous-*leaved* Magnolia.

*Identification.* Lin. Sp., 2. p. 755.; Tor. and Gray, 1. p. 42.; Dec. Prod., 1. p. 80.; Don's Mill., 1. p. 82.

*Synonymes.* M. frâgrans *Salisb.*; Swamp Sassafras, Beaver-wood, white Bay, small Magnolia, Swamp Magnolia; Magnolie glauque, Arbre de Castor, *Fr.*; grauer Bieberbaum, *Ger.*

*Derivation.* It is named Swamp Sassafras on account of its growing in boggy places, and resembling in qualities the *Laúrus Sássafras*; and Beaver-wood, because the root is eaten as a great dainty by the beavers, and these animals are caught by means of it. It also grows in the swamps, which they inhabit; and Michaux tells us that it is felled by them for constructing their dens and houses, in preference to any other tree, on account of the softness of the wood.

*Engravings.* Lodd. Bot. Cab., t. 215.; Sims Bot. Mag., 2164.; the plate of this species in Arb. Brit., 1st edit. vol. v.; and our *fig.* 35.

*Spec. Char., &c.* Almost deciduous. Leaves elliptical, obtuse, under surface glaucous. Flower 9—12-petaled, contracted. Petals ovate, concave. (*Don's Mill.*) A shrub, or low tree, sometimes sub-evergreen. Massachusetts to Missouri in swamps. Height in America 3 ft. to 10 ft.; 6 ft. to 20 ft. in England. Introduced in 1688. Flowers white, 2 in. to 3 in. broad, very fragrant; June and September. Strobile brownish. Seeds deep scarlet; ripe in October. Decaying leaves yellow, brown, or black. Naked young wood green.

35. Magnòlia glaúca.

*Varieties.*

☨ *M. glaúca* 2 *sempervìrens* Hort. — Sub-evergreen, and with smaller leaves than those of the next variety.

☨ *M. glaúca* 3 *Thompsoni*àna *Thomp.* M. glaúca var. *α* màjor *Bot. Mag.*, new edition, p. 36. The plate of this in the Arb. Brit., first edition, vol. v.; and our *fig.* 36.— It was noticed about 1820, in a pot of seedlings, by Mr. Thompson, in his nursery at Mile-end; and by him kept distinct, and propagated under the above name.

36. Magnòlia glaúca Thompsoniàna.

*Other Varieties.* *M. glaúca Gordoni*àna and *M. glaúca Burchell*iàna are names found in nurserymen's catalogues, of varieties said to have double or semi-double flowers. *M. g. longifòlia* Pursh is supposed to be an aboriginal variety, and sub-evergreen; but we think it probably the same variety as M. g. Thompson*iàna,* which may have come up wild in America, as well as in Mr. Thompson's nursery. *M. g. Cardòni*i, M. Cárdon *J. Knight,* is a variety imported from Belgium, where it was found by Mr. Knight of the Exotic Nursery, in the nursery of M. Cardon, after whom he has named it.

A low tree, nearly evergreen in moist soils, with a slender stem, covered with a smooth whitish bark. The wood is white and spongy; the young shoots of a fine green. The leaves are smooth, of a bluish green on their upper surface, and whitish or glaucous and a little hairy underneath. The flowers are produced in May or June, at the extremity of the last year's shoots. They have six concave white petals, and have an agreeable odour. The spike or strobile of fruits is an inch or more in length, conical, an inch in diameter in the widest part, and of a reddish brown colour when ripe. When the plant is in a soil supplied with moisture during the summer, it continues to produce flowers till the autumn, and retains part of its leaves all the winter: in dry situations the leaves drop off. Seeds are frequently ripened in England: they are of a bright scarlet, and they hang down by slender white threads, as in all the other American species. The young shoots are from 1 ft. to 18 in. in length, and the plant, in ordinary circumstances, will attain the height of 12 ft. in ten years. Plants are generally raised from seeds imported from America, which should be sown in pots of bog earth about the beginning of March, and placed in gentle heat under glass. In a year they will be fit to transplant into small pots; and every year they should be shifted into others of a larger size, till wanted for final planting out. M. glaúca Thompson*iàna,* and the other varieties, are propagated by layers, which require two years to root properly.

### ♃ 3. MAGNO'LIA TRIPE'TALA *L.* The three-petaled Magnolia.

*Identification.* Lin. Sp., 2. p. 756.; Michx., 3. p. 90.
*Synonymes.* M. umbrella *Lam.*, *Nouv. Duh.*, *Dec. Prod.*, *Don's Mill.*, *Tor. & Gray*; M. frondòsa *Salisb.*; the Umbrella Tree; Umbrella Magnolia; Elkwood; Magnolie Parasol, and Arbre Parasol *Fr.*; dreyblättriger Bieberbaum, dreiblättrige Magnolie, *Ger.*
*Derivation.* This species is called the Umbrella Tree, according to Michaux, because its leaves, which are thin, oval, entire, and acuminate at both extremities, 18 in. or 20 in. long, and 7 in. or 8 in. broad, are often disposed in rays at the extremity of vigorous shoots; and these display a surface of 2½ ft. in diameter, in the form of an umbrella. The tree is called Elkwood in the mountains of Virginia, probably from the resemblance which the points of the shoots bear to the horns of the elk. The French names merely signify umbrella tree, and the German ones the three-petaled beaver tree, or magnolia.
*Engravings.* Michx. Arb., 3. t. 5.; Lodd. Bot. Cab., t. 418.; the plate of this species in Arb. Brit. 1st edit. vol. v.; and our *fig.* 37.

*Spec. Char., &c.* Deciduous. Leaves lanceolate, spreading, adult ones smooth, younger ones pubescent underneath. Petals 9—12, exterior ones pendent. (*Don's Mill.*, i. p. 83.) A deciduous tree of the middle size. Pennsylvania to Georgia, in moist soil. Height 30 ft. to 40 ft. in America; 15 ft. to 30 ft. in England. Introduced in 1752. Flowers white, 7 in. to 8 in. in diameter, with an unpleasant odour; May to July. Strobiles rose-coloured, 4 in. to 5 in. long; ripe in October. Decaying leaves dark brown or black. Naked young wood of a fine mahogany brown.

37. Magnòlia tripétala.

This tree, both in America and Europe, is remarkable for the largeness of its leaves and its flowers. The wood is spongy, brittle, with a large pith, soft, porous, and of very little use. The bark upon the trunk is grey, smooth, and polished; and, if cut while green, it exhales a disagreeable odour. In Britain the tree sends up various shoots from the root, to replace the stems, which are seldom of long duration; so that a plant that has stood thirty or forty years in one spot has had its stems several times renewed during that period. The leaves are 18 or 20 inches long, and 7 or 8 inches broad. The flowers are 7 or 8 inches in diameter, with large white flaccid petals; they are borne on the extremities of the last year's shoots, have a languid luxurious appearance, and a sweet but heavy odour. The fruit, which is conical, is 5 or

6 inches long, and about 2 in. in diameter; it is of a beautiful rose colour, and contains usually from 50 to 60 seeds. This species is very hardy, and can withstand the most rigorous winters, when the summer has been sufficiently hot to ripen the wood thoroughly. As it is a short-lived tree, and consequently flowers early, there is not the same objection to raising plants of it from seed, as there is to raising plants in that manner of M. grandiflòra, which is a long-lived species. The soil should be a deep, rich, sandy loam, and the situation sheltered and shaded. Exposure to the sun is injurious; and, trained against a south wall, the plant suffers extremely. A sheltered glade in a shrubbery or wood, where the tree is sufficiently distant from others not to be injured by their roots, is the most desirable site. In the nurseries it is almost always propagated by seeds, which should be sown immediately after they are gathered, as when they are left exposed they become rancid and lose their vital qualities; though, if enveloped in moist moss or earth, they may be preserved for several months. The plants should be kept in pots until required for final transplanting.

♃ 4. M. MACROPHY'LLA *Mx.* The long-leaved Magnolia.

*Identification.* Mich. Bor. Amer., 1. p. 327.; Dec. Prod., 1. p. 80.; Don's Mill., 1. p. 83.; Tor. and Gray, 1. p. 43.
*Synonymes.* Large-leaved Umbrella Tree, *Amer.*; Magnòl*ia* Michaúx*ii* Hort.; Magnolier à grandes Feuilles, Magnolier bannanier, *Fr.*; grosseblättrige Bieberbaum, *Ger.*
*Engravings.* Bot. Mag., 2189.; the plate in Arb. Brit., 1st edit. vol. v.; and our *fig.* 38.

*Spec. Char., &c.* Deciduous. Leaves very large, oblong-obovate, somewhat panduriform, cordate at the base, under surface whitish, glaucous. Petals 6—9, ovate. (*Don's Mill.*) A deciduous tree of the middle size. North Carolina and Georgia. Height 30 ft. to 40 ft. in America; 15 ft. to 30 ft. in England. Introduced in 1800. Flowers white, with a purple spot near the base of each petal; 8 in. to 10 in. in diameter, fragrant; June and July. Strobile rose-coloured; ripe in October. Decaying leaves yellow, brown, or black. Naked young wood of a whitish brown.

38. Magnòlia macrophýlla.

The general appearance of this tree greatly resembles that of Magnòlia tripétala. The terminal arrangement of the leaves is the same, and it is remarkable that in America the two trees are almost always found together. In point of size, it exceeds the M. tripétala, both in its leaves and general height; but it is seldom found higher than 35 ft., which exceeds the height of the other by a sixth part only. The body of the tree is covered with a smooth and very white bark, by which, in the winter, when stripped of its leaves, it is readily distinguished from M. tripétala. At this season, also, it may be distinguished by its buds, which are compressed, and covered with a soft and silvery down; whereas in M. tripétala they are prominent and rounded at the end. The leaves, in its native country, are 35 in. long, and 9 or 10 inches broad; and in vigorous plants, in England, they sometimes even exceed these dimensions. They are borne on petioles short in comparison with the size of the leaves, and are of an oblong oval shape, pointed at the extremity, and cordiform at the base; their colour is light green above, and glaucous beneath. The fruit is about 4 in. long, nearly cylindrical, and of a vivid rose-colour when arrived at maturity. Young plants of this species grow very slowly till they are thoroughly established, which will require, in general, two years. The year's shoots may then be from 1 ft. to 2 ft.; so that in ten years a plant may attain the height of 12 or 15 feet. It may be considered a short-lived tree, and, like all such, it comes into flower when young. It has rarely, if ever, been propagated in this country by inarching or layers, and very seldom from seeds; and, hence, the plant is very sparingly distributed. Soil, propagation, &c., as in M. tripétala. Seeds are ripened in France, and young plants imported from that country, or from North America.

### ✝ 5. M. ACUMINA'TA *L.* The pointed-*leaved* Magnolia.

*Identification.* Lin. Sp., 756.; Dec. Prod., 1. p. 80.; Don's Mill., 1. p. 83.; Tor. and Gray, 1. p. 43.

*Synonymes.* M. rústica, and M. pennsylvánica, of some; the blue Magnolia, *Eng.*; the Cucumber Tree, *U. S.*; Magnolier acuminé, Magnolier à Feuilles pointées, *Fr.*; zugespitzer Bieberbaum, *Ger.*

*Derivation.* This species is called the Cucumber Tree, in America, from its fruit resembling a small cucumber. The other names are translations of the botanic one.

*Engravings.* Mich. Arb., 3. p. 82. t. 3.; Bot. Mag., 2427.; and the plate in Arb. Brit., 1st edit. vol. v.; and our *fig.* 39.

*Spec. Char., &c.* Deciduous. Leaves oval, acuminate, under surface pubescent. Flowers 6—9-petaled. (*Don's Mill.*) A deciduous tree of large size. New York to Georgia. Height in America 60 ft. to 80 ft., with the trunk 4 ft. to 5 ft. in diameter at the base; in England 30 ft. to 50 ft. Introduced in 1736. Flowers yellowish within, glaucous without, slightly fragrant; May to July. Strobile cylindrical, brownish red, 3 in. long; ripe in October. Decaying leaves dark brown or black. Wood of a mahogany brown.

*Varieties.*

✝ *M. a.* 2 *Candólli Savi.*—Leaves ovate oblong, acute. Flowers greenish. Figured in Savi's *Bibl. Ital.*, p. 224.

✝ *M. a.* 3 *máxima* Lodd.—Leaves much larger than those of the original species. Introduced by Messrs. Loddiges, and cultivated in different nurseries.

*Other Varieties.* The Magnòlia acuminàta being frequently raised from seed, and the seedlings varying much in the size of their leaves, and in the presence or absence of pubescence, both on the leaves and wood, it would be easy to select several varieties apparently as distinct as those above mentioned, such as M. striàta, latifòlia, &c. In the Goldworth Nursery, Woking, Surrey, are some which appear remarkably distinct.

Trunk straight, branches numerous, shoots regularly distributed. The leaves are from 6 in. to 7 in. long, and from 3 in. to 4 in. broad, upon old trees, but double that size upon young vigorous-growing plants. Michaux describes them as oval, entire, and very acuminate; but, in the seedlings raised in British nurseries, they are found sometimes ovate, nearly orbiculate,

39. Magnòlia acuminata.

and cordate acuminate. The flowers are 4 or 5 inches in diameter, bluish, and sometimes white, with a tint of yellow. They have but a feeble odour, and the petals are never fully expanded, though, as they are large and numerous, they have a fine effect in the midst of the superb foliage. Plants raised from seeds do not usually produce flowers till they are eight or ten years old, when the tree will probably be from 15 ft. to 20 ft. in height; but plants raised from layers produce flowers in two or three years. The fruit is about 3 in. long, and nearly 1 in. in diameter. It is nearly cylindrical, and often a little larger at the summit than at the base: it is convex on one side, and concave on the other; and, when green, it nearly resembles a young cucumber: it becomes rose-coloured when ripe; and, as in the case of the other species, the seeds, before they drop, remain suspended for some time by long white threads. The wood of this tree is of a fine grain, and of an orange colour. A free, deep, and rather moist soil answers best for this species; but, as it is much hardier than any of the others in this section, it will grow in almost any soil that is moderately free, and not overcharged with moisture. It is generally propagated in the London nurseries by layers, the plants so produced flowering much sooner than seedlings; but the latter, as they make far more durable plants, should always be preferred when this species is used as a stock to graft or inarch others on. It is so used very generally, not only for M. auriculàta and cordàta, but for M. conspícua and Soulange*àna*. The plants are, in some nurseries, grown in the free soil; but it is always preferable to rear them in pots; because, in that case, they are not checked by transplanting, and at least a year is gained in their growth.

♃ 6. M. (A.) CORDA'TA *Mx.* The heart-*leaved* Magnolia.

*Identification.* Mich. Bor. Amer., 1. p. 328.; Dec. Prod., 1. p. 80.; Don's Mill., 1. p. 83.; Tor. and Gray, 1. p. 43.
*Synonymes.* The heart-leaved Cucumber Tree, *Amer.*; Magnolier à Feuilles en Cœur, *Fr.*; herzblättriger Bieberbaum, *Ger.*

*Engravings.* Bot Mag., t. 325.; Bot. Cab., 474.; the plate in Arb. Brit., 1st edit. vol. v.; and our *fig.* 40.

*Spec. Char., &c.* Deciduous. Leaves broadly ovate, subcordate, acute, under surface tomentose, upper surface smooth. Petals 6—9, oblong. (*Don's Mill.*) A deciduous tree of the middle size. Carolina to Georgia, on mountains. Height 20 ft. to 40 ft. and 50 ft. in America, and 20 ft. to 30 ft. in England. Introduced in 1800. Flowers yellow slightly streaked with red, with a disagreeable odour, seldom expanding fully; June and July. Strobile like that of M. acuminàta, but smaller; ripe in October. Decaying leaves dark brown or black. Naked young wood hoary brown.

40. Magnòlia cordàta.

This tree, in its native country, has a trunk 12 or 15 inches in diameter, straight, and covered with a rough and deeply furrowed bark. Its leaves are from 4 in. to 6 in. in length, and from 3 in. to 5 in. wide, smooth and entire. The flowers are from 3 in. to 4 in. in diameter, and are succeeded by fruit about 3 in. long, and nearly 1 in. in thickness, of a similar form to those of the preceding species. The soil, situation, propagation, &c., may be considered the same as for M. acuminàta; but, as M. (a.) cordàta seems, in its native country, to inhabit higher and drier localities than M. acuminàta, it may probably be placed in still more exposed situations than that species in Britain.

♃ 7. M. AURICULA'TA *Lam.* The auricled-*leaved* Magnolia.

*Identification.* Willd. Sp., 2. p. 1258.; Dec. Prod., 1. p. 80.; Don's Mill., 1. p. 83.
*Synonymes.* M. Fràseri Walt., Tor. & Gray; M. auriculàris *Salisb.*; Indian Physic, and long-leaved Cucumber Tree, *Amer.*; Magnolier auriculé, *Fr.*; geöhrter (eared) Bieberbaum, *Ger.*
*Engravings.* Bot. Mag., 1206.; the plate in Arb. Brit., 1st edit. vol. v.; and our *fig.* 42.

*Spec. Char., &c.* Deciduous. Leaves smooth, under surface somewhat glaucous, spathulately obovate, cordate at the base, with blunt approximate auricles. Sepals 3, spreading. Petals 9, oblong, attenuate at the base. (*Don's Mill.*) A smooth deciduous tree of the middle size. Carolina to Florida, and on the Alleghany Mountains. Height 30 ft. to 40 ft. in America, and 20 ft. to 30 ft. in England. Introduced in 1786. Flowers white; April and May. Strobile oval oblong, rose-coloured; ripe in October. Decaying leaves of a rich yellowish brown. Naked young wood smooth, and of a purplish mahogany colour, with small white dots.

*Variety.*

*M. a.* 2 *pyramidàta.* M. pyramidàta *Bartr.*; M. Fràseri pyramidàta *Nutt., Tor. & Gray.* The plate in Arb. Brit. 1st edit. vol. v.; and

41. Magnòlia auriculàta pyramidàta.

our *fig.* 41. — Leaves shorter than those of the species, and the plant altogether weaker. It is found in the western parts of Carolina and Georgia, but only in two or three localities. Propagated by inarching on M. auriculàta, but it requires two years to adhere, and seldom makes a vigorous plant.

This tree has a straight trunk 12 or 15 inches in diameter, often without branches for half its height; the branches spread widely, and ramify but sparingly; and this circumstance, Michaux observes, gives the tree a very peculiar air, so that it may readily be known at a distance, even in winter.

42. Magnòlia auriculàta.

The leaves are of a light green colour, of a fine texture, 8 or 12 inches long, and from 4 in. to 6 in. broad: on young and vigorous trees they are often one third, or even one half, larger. The flowers are 3 or 4 inches in diameter, of a milky white, and of an agreeable odour, and are situated at the extremity of the young shoots. The fruit is oval, 3 or 4 inches long, and, like that of

Magnòlia tripétala, of a beautiful rose colour when ripe; it differs from those of the other species by a little inferiority of size, and by a small appendage which terminates the carpels. Each carpel contains one or two seeds. The wood is soft, spongy, very light, and unfit for use. The bark is grey, and always smooth, even on the oldest trees. When the epidermis is removed, the cellular integument, by contact with the air, instantly changes from white to yellow. In England, annual shoots of young plants are from 1 ft. to 2 ft. or more in length; and the height which the tree usually attains in 10 years is from 10 ft. to 15 ft. The soil for this species ought to be free and deep; and the situation low, sheltered, and moist, rather than dry. As seeds are not very easily procured, the common mode of propagation is by layers, or by inarching on M. acuminàta. Two years are required before the plants can be separated from the parent stock.

## § ii. *Gwillímia Rott. in Dec. Syst.*

*Derivation.* Named in honour of *General Gwillim*, some time governor of Madras. (*Don's Mill.*, 1. p. 83.)

*Sect. Char.* Asiatic species, generally with two opposite spathe-like bracteas enclosing the flower-bud. Anthers bursting inwards. Ovaries somewhat distant. (*Don's Mill.*) Trees or shrubs; natives of Asia.

ϒ 8. M. CONSPI'CUA *Salisb.* The *Yulan, or* conspicuous-*flowered* Magnolia.

*Identification.* Dec. Prod., 1. p. 81.; Don's Mill. 1., p. 83.
*Synonymes.* M. prècia *Correa*; M. *Yulan* Desf.; Yu lan, *Chinese*; the Lily-flowered Magnolia; Magnolier Yulans, *Fr.* Yulans Bieberbaum, *Ger.* Magnolia dai Fiori di Giglio, *Ital.*
*Derivation.* The epithet prècia was given to this magnolia by M. Correa, because it produces its flowers before its leaves. Yu lan signifies the lily tree. Giglio is the Italian for a lily.
*Engravings.* Bot. Mag., 1621.; the plate of this species in Arb. Brit. 1st edit. vol. v.; and our *fig.* 44.

*Spec. Char., &c.* Deciduous. Leaves obovate, abruptly acuminated; younger ones pubescent, expanding after the flowers. Flowers erect, 6—9-petaled. Styles erect. (*Don's Mill.*) A deciduous tree of the middle size. China. Height in China 40 ft. to 50 ft.; in England 20 ft. to 30 ft. Introduced in 1789. Flowers white, fragrant; February and April. Strobiles brownish; ripe in September. Decaying leaves dark brown or black. Naked young wood ash-coloured or greyish brown.

*Varieties, or Hybrids.*

ϒ *M. c.* 2 *Soulangeàna.* M. Soulangeàna An. Hort. Soc. Par.; Magnolier de Soulange, *Fr.* (M. Soulangeàna Swt. Brit. Fl.-Gard., t. 260.; and our *fig.* 43.) — The leaves, wood, and general habit of this tree bear a close resemblance to those of M. conspícua. The flowers resemble in form those of M. purpùrea var. grácilis or of M. purpùrea, and the petals are slightly tinged with purple. It was raised at Fromont, near Paris, from the seeds of a plant of M. conspícua, which stood near one of M. purpùrea, in front of the château of M. Soulange-Bodin; the flowers of the former of which had been accidentally fecundated by the pollen of the latter.

43. Magnòlia conspícua Soulangeàna.

*Other Varieties, or Hybrids.* M. conspícua has ripened seeds in various places; and, as it fertilises readily with M. purpùrea and M. grácilis, many new varieties may be expected when the attention of cultivators is more

especially directed to the subject. *M. c. S. speciòsa* and *M. c. S. Alexandrìna* are in British gardens, but they are not worth keeping distinct from M. c. Soulangeàna.

44. Magnòlia conspícua.

This is a very showy tree, distinguishable from all the other magnolias of both sections, by its flowers expanding before any of the leaves. The tree assumes a regular conical shape, with a grey bark and numerous branches and twigs, which generally have a vertical, rather than a horizontal, direction. The young shoots are from 1 ft. to 18 in. in length, and the tree, in ten years, will attain the height of from 10 ft. to 15 ft., flowering the second or third year after grafting. It is nearly as hardy as the American species; flowering freely every year, as a standard, in the neighbourhood of London, when the wood has been properly ripened during the preceding summer. A rich sandy loam seems to suit this species best; but it will grow in any deep free soil, properly drained, and moderately enriched. The situation, when it is to be treated as a standard, ought to be sufficiently open to admit of ripening the wood in autumn, and yet not so warm as to urge forward the flower-buds prematurely in spring, as they are very liable to be injured by frost; from which, however, they may be protected by a very slight covering (during nights and frosty days) of gauze or bunting, stretched over the tree horizontally, and supported by posts. Against a wall, the tree shows itself in its greatest beauty; and there it can easily be protected, by a projecting coping, from the severest weather ever experienced in the neighbourhood of London. In warm situations, sloping to the south or south-east, the tree has a fine effect planted in front of a bank of evergreens; and, indeed, wherever it is planted, evergreens should be placed near it, and, if possible, so as to form a background, on account of the flowers expanding before the tree is furnished with any leaves. The species and all the varieties are propagated by layers, or by inarching on M. purpùrea or on M. acuminàta. When inarched on M. purpùrea, the tree is comparatively dwarfed, by which it is rendered very convenient for use as a shrub, or for growing in pots, and forcing; but, when it is intended to form a tree, it should either be inarched on M. acuminàta, or raised from layers or seeds. It generally requires two years before the plants can be separated from the parent stock. Some plants of this species have been raised from seed ripened in Europe; and we have no doubt that, when this magnificent tree becomes better known and more generally in demand, it will be raised in this way extensively in France and Italy, and supplied to the British nurseries from these countries.

✠ 9. M. PURPU'REA *Sims.* The purple-*flowered* Magnolia.

*Identification.* Sims, in Bot. Mag.
*Synonymes.* M. obovàta *Thun.*, and *Don's Mill.* l. p. 84.; M. díscolor *Vent.*; M. denudàta *Lam.*, the obovate-leaved Magnolia; Magnolier discoloré *Bon. Jard.*, and Magnolie bicoloré *Dun.*, *Fr.*, rothe Bieberbaum, *Ger.*
*Engravings.* Sal. Par., t. 87.; Bot. Mag., t. 390; and our *fig.* 45.

*Spec. Char., &c.* Deciduous. Leaves obovate, acute, reticulately veined; almost smooth. Flowers erect, of 3 sepals and 6 obovate petals; styles very short. (*Don's Mill.*) A deciduous shrub, with large dark green foliage. Japan. Height 3 ft. to 5 ft. Introduced in 1790. Flowers purple outside, white within; March to May. Strobile brownish; ripe in September. Decaying leaves black. Naked young wood greenish brown.

*Varieties.*

✠ *M. p.* 2 *grácilis.* M. *Kòbus* Dec. and G. Don; M. tomentòsa *Thun.* in *Lin. Trans.* Kæmpf. Icon., t. 42.; Par. Lon., t. 87. — The two main points of difference between it and M. purpùrea are, the paler green, and somewhat narrower shape, of the leaves; and the longer and more slender form of the flower, the points of the petals of which are slightly turned back; while the flower of M. purpùrea is more cup-shaped, and the petals at the points are rather turned inwards. The petals of M. grácilis are on the exterior entirely of a dark purple, whereas those of M. purpùrea melt off into white at their upper extremities. A number of plants of this variety, which stood in the Hammersmith Nursery as border shrubs, and flowered freely every year, were killed down to the ground in the winter of 1837–8.

*Other Varieties.* In DeCandolle's *Prodromus*, and in Don's *Miller*, three varieties are described: *M. p. denudàta* Lam., distinguished by the flowering branches being without leaves; *M. p. díscolor* Vent., which is said to be rather more tender than the species; and *M. p. liliflòra* Lam., the petals of which are white on both sides. These varieties were originally described by Kæmpfer; but, as far as we know, none of them are in British gardens. Several plants of this species having been raised from seed ripened in this country, the plants may exhibit slight shades of difference, as has been the case with certain seedlings raised in the Brentford Nursery; but, as far as we have observed, none of these are worth keeping distinct. The only variety which we consider truly distinct is *M p. grácilis*, considered as a species by Salisbury and other botanists, but which, we are convinced, is nothing more than a race, or a variety. At Desio, a variety has been raised which grows only 1½ ft. high, and which Signor Cassoretti, the garden director there, calls *M. obovàta pùmila.*

45. Magnòlia purpùrea.

A deciduous shrub, attaining, in the gardens about London, the height of from 4 ft. to 8 ft. in as many years, and seldom growing much higher as a bush. The stems are numerous, but not much branched; the leaves are large, of a very dark green; and the plant produces a profusion of flowers, which do not expand fully till a day or two before they drop off; and which, unless the weather is warm, do not expand at all, but wither on the plant, and disfigure it. The flowers are large, more or less purple (according to the season, but never wholly dark purple) without, and always white within. The bark, when bruised, has an aromatic odour. A very ornamental species, which no garden ought to be without. This species is generally considered as requiring a mixture of heath soil, or sandy peat, with loam; but in many gardens about London it succeeds perfectly both in sand

and clay; the latter soil being rendered free by sand, leaf mould, or manure, and drainage. The situation, when the plant is treated as a bush, ought to be open, in order that the wood may be ripened; and the plant should be detached, in order that it may be covered with foliage and blossoms on every side. North of London, in most situations, it requires a wall, and few plants are more deserving of one. Against a wall, it will reach the height of 15 ft. or 20 ft. In the London nurseries, it is generally propagated by layers; but it will also strike by cuttings, both of the ripened and the herbaceous wood. The stools are generally formed in pits; or, if in the open ground, they are covered with mats during winter. Seeds have been ripened both in England and France; and from these plants have been raised in some few nurseries. The plants, whether raised from layers, cuttings, or seed, should always be kept in pots till wanted for final planting. This species often serves as a stock for grafting the other kinds on, which belong to this section.

## Genus II.

### LIRIODE'NDRON *L.* The Tulip Tree.

*Gen. Char.* *Carpels* 1—2-seeded, disposed in spikes, indehiscent, deciduous, drawn out into a wing at the apex. *Calyx* of 3 deciduous sepals. *Corolla* of 6 petals, conniving into a bell-shaped flower. (*Don's Mill.*, i. p. 86.) — There is only one species; a deciduous tree of the first rank, native of North America.

*Leaves* simple, alternate, stipulate, deciduous; 3-lobed, the terminal lobe emarginately truncate, the lateral ones with two sinuses. *Stipules* flat. *Flowers* terminal, solitary, greenish yellow, orange within. — The only species in British gardens is the Liriodéndron Tulipifera.

♃ 1. Liriode'ndron Tulipi'fera *L.* The Tulip-bearing Liriodendron, *or* Tulip Tree.

*Identification.* Lin. Sp., 755.; Dec. Prod., 1. p. 82.; Don's Mill., 1. p. 86.

*Synonymes.* The Poplar, White Wood, Canoe Wood, the Tulip Tree, *Amer.*; Virginian Poplar, Tulip-bearing Lily Tree, Saddle Tree, *Eng.*; Tulipier de Virginie, *Fr.*, Virginischer Tulipeerbaum, *Ger.*

*Derivation.* This tree is called Liriodéndron, from *leirion*, a lily, and *dendron*, a tree; from the flowers resembling those of a lily, though more correctly those of a tulip, as the specific name implies. It is called Poplar, from its general resemblance to trees of that genus; White Wood, from the colour of its timber; Canoe Wood, from the use to which it is applied by the native Indians: Tulip Tree, from its tulip-like flowers; and Saddle Tree, from the form of its leaves. The French and German names are literal translations of the words Virginian tulip tree.

*Engravings.* Bot. Mag., 275.; Duh., tom. 3. t. 18.; the plate in Arb. Brit., 1st edit. vol. v.; and our *fig.* 46.

*Spec. Char., &c.* Leaves smooth, truncate at the top; 4-lobed, resembling a saddle in shape. Flowers large, solitary, terminal; variegated with green, yellow, and orange colour; furnished with two deciduous bracteas under flowers. (*Don's Mill.*) A smooth deciduous tree of large size. Canada to Florida. Height 70 ft. to 140 ft., and trunk 8 ft. to 9 ft. in diameter, in America; 50 ft. to 90 ft. in England. Introduced in 1688. Flowers greenish yellow without, orange within; June and July. Strobile brown; ripe in October. Decaying leaves rich yellow and brown. Naked young wood smooth, and of a mahogany brown.

*Variety.*

♃ *L. T.* 2 *obtusíloba* Michx., integrifòlia *Hort.*, Yellow Wood, or Yellow Poplar, has the leaves with blunter lobes than the species, but is in no other respect different from it.

*Other Varieties.* *L. T. acutifòlia* Michx. has never, we believe, been introduced. *L. T. flàva* Hort. has yellow flowers. As the tulip tree is almost always raised from seeds, it is probable that the flowers of seedlings will

vary in their shades of colour, and any desirable variation may be perpetuated by propagating the plant possessing it by layers or inarching.

46. Liriodéndron Tulipfera.

In the developement of its leaves, the tulip tree differs from most other trees. The leaf-buds, in general, are composed of scales closely imbricated, which, in the spring, are distended by the growth of the minute bundle of leaves that they enclose, till they finally fall off. The flowers, which are large, brilliant, and on detached trees very numerous, are variegated with different colours, among which yellow predominates; they have an agreeable odour, and, surrounded by the luxuriant foliage, they produce a fine effect. The fruit is composed of a great number of thin narrow scales, attached to a common axis, and forming a conical spike 2 or 3 inches in length. Each fruit contains 60 or 70 carpels; of which never more than a third, and, in some seasons, not more than seven or eight in the whole number, are matured. It is also observed, that, during ten years after it begins to yield fruit, almost all the seeds are unproductive; and that, on large trees, the seeds from the highest branches are the best. The heart, or perfect, wood of the tulip tree is yellow, approaching to a lemon colour; and its sap, or alburnum, is white. The annual shoots of young plants, in the neighbourhood of London, are from 18 in. to 2 ft. in length; and the tree will, in favourable circumstances, attain the height of from 15 ft. to 20 ft. in ten years; seldom, however, flowering till it is upwards of twenty years old. The height, in England, frequently exceeds 70 ft.; and it has ripened seeds here, occasionally, from which young plants have been raised. It ripens its fruit very generally in France; though it is observed, in the *Nouveau Du Hamel*, that these seeds do not vegetate so freely as those which are imported from America. Deep, loamy, good soil best suits the tulip tree; and the situation most favourable is one which, while it is sheltered from high winds, is, at the same time, sufficiently exposed to the light and air to admit of the maturation of its leaves on every side, and the perfect ripening of its wood, without which it can neither resist the severe frosts of winter, nor form blossom buds. The species is seldom, if ever, propagated otherwise than by seeds, which come up best in heath soil, very fine mould, or sandy loam, in a shady situation, kept rather moist; but the varieties are multiplied by layers or inarching. When the seeds are sown in autumn, they generally come up the following spring; but, sown in spring or the beginning of summer, they generally remain a year in the ground. The tulip tree, like the magnolias, having roots furnished with but few fibres, does not transplant readily; and, therefore, the plants ought either to be kept in pots, or, if in the free ground, transplanted in the nursery every year; or, if neither of these modes be practicable, removed to their final situation, when not more than two, or at most three, years old. The tree is, like the magnolias, not very patient of the knife, either in a young or in an old state; and, from the bitter qualities of the

leaves, it does not seem to be much attacked by insects. As tulip trees raised from seed seldom flower before they are twenty or thirty years old, it is much to be wished, that nurserymen would propagate them by grafting or inarching from flowering trees, in consequence of which the plants would probably flower the second or third year.

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## Order IV. *ANONA'CEÆ.*

*Ord. Char.* The distinctive characteristics of this order from that of Magnoliàceæ are: *Anthers* with an enlarged four-cornered connectivum, which is sometimes nectariferous; *albumen* pierced by the substance of the seed-coat; *leaves* without stipules, conduplicate in the bud; *properties* aromatic. — Trees or shrubs mostly natives of warm climates

*Leaves* simple, alternate, exstipulate, deciduous; distinctly articulated with the stem, entire; leaves and branches pubescent when young, the leaves commonly minutely punctate, with pellucid dots. *Flowers* axillary. — The hardy species, in British gardens, are included in the genus *Asímina* Adans., formerly *Anòna* L., and are natives of North America.

### Genus I.

*ASI'MINA* Adans. The Asimina. *Lin. Syst.* Polyándria Polygýnia.

*Identification.* Adans. Fam., 2. p. 365.; Dec. Prod., 1. p. 87.; Don's Mill., 1. p. 91.
*Synonymes.* *Annòna* L.; Orchidocárpum *Mx.*; Porcèliæ sp. *Pers.*; Uvària *Tor. & Gray*; Custard Apple; Asiminier, and Anone, *Fr.*; Flaschenbaum, *Ger.*
*Derivation.* *Asímina* is Latinised from a word of Canadian origin, the meaning of which is not known. Orchidocárpum was, it is probable, intended to express a likeness between the figure of the fruit, and that of some species of *O'*rchis. Porcèlia is a name given by Ruiz, in honour of *Antonio Porcel*, a Spanish promoter of botany. *Anòna* is a South American word that signifies a mess, or dish of food, to be eaten with a spoon. Uvària is from *uva*, a grape, to which, however, the fruit has little resemblance. The German name, Flaschenbaum, flask tree, is given from the shape of the fruit.

*Gen. Char.* *Calyx* 3-parted. *Petals* 6, spreading, ovate-oblong, inner ones smallest. *Anthers* numerous, nearly sessile. *Ovaries* many, but for the most part only 3, ovate or oblong. *Carpels* the same number as the ovaries, baccate, sessile. *Seeds* many, disposed in a single or double row. (*Don's Mill.*) — Low trees or shrubs, deciduous, with white or purplish flowers, and fruit about the size of small plums. Rather tender, and difficult of culture. Only one species is truly hardy in the climate of London.

1. *A.* tri'loba *Dun.* The three-lobed-*calyxed* Asimina.

*Identification.* Dun. Monog.; Dec. Prod., 1. p. 87.; Don's Mill., 1. p. 91.
*Synonymes.* *Annòna* tríloba *L.*, and *Mx.* in *Arb.*; Porcèlia tríloba *Pers.*; Orchidocárpum arietinum *Mx. Bor. Am.*; Uvària tríloba *Tor. & Gray*; the Papaw, *Amer.*; Asiminier de Virginie, and Annone à trois Lobes, *Fr.*; dreylappiger (three-lobed) Flaschenbaum, *Ger.*
*Engravings.* Mill. Icon., 1. t. 35.; Tor. and Gray, 1. p. 45.; Mx. Arb., 3. t. 9.; and our *fig.* 47.

*Spec. Char., &c.* Leaves oblong-cuneated, acuminated, and, as well as the branches, smoothish. Flowers on short peduncles; outer petals roundish-ovate, four times longer than the calyx. (*Don's Mill.*) A low deciduous tree. Middle, southern, and western states of North America. Height 15 ft. to 20 ft. in North America; 7 ft. to 10 ft. in England. Introduced in 1736. Flowers dark purple and yellow. Fruit yellowish, esculent; ripe in August in America, rarely seen in England. Decaying leaves rich yellowish brown. Naked young wood dark brown.

A small tree, densely clothed with long leaves, lying over one another in such a manner as to give a peculiarly imbricated appearance to the entire plant. The flowers are campanulate and drooping, and appear before the

leaves; the outer petals are purple, and vary in colour in different plants; in some being very dark, and in others light, inclining to yellow. All parts of the tree have a rank, if not a fetid, smell; and the fruit is relished by few persons except the negroes, who call it papaw. The fruit ripens in America in the beginning of August, and is about 3 in. long and 1½ in. thick, oval, irregular, and swelling into inequalities. In British gardens, the plant is always raised from American seeds; and, to thrive, it requires to be planted in sandy peat or deep sand, and kept moist. In England it may be considered as a curious, slow-growing, deciduous shrub, or low tree, well deserving a place in gardens, but which ought always to be isolated, and at some distance from rapid-growing plants Relatively to growth, it may be placed near Dírca palústris, some of the daphnes, or Illícium.

47. *Asímina* tríloba.

*Other Species of* Asímina. — A. *parviflòra* and A. *grandiflòra* are North American shrubs, seldom growing higher in their native habitats than 1 ft. to 2 ft., and rather too tender for the climate of London.

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## Order V. MENISPERMA'CEÆ.

*Ord. Char.* *Flowers* unisexual. *Sepals* and *petals* similar. *Stamens* monadelphous, or rarely free. *Ovaries* somewha connected at the base; with one or many *styles*; many-celled. *Fruit*, in most, baccate or drupaceous, one-seeded or many-seeded, oblique or lunulate, compressed, with the *seeds* of the same form. *Embryo* curved or peripheric. *Albumen* none, or very sparing and fleshy. (*Don's Mill.*) — Climbing or twining flexible shrubs, natives of North America and Asia.

*Leaves* simple, alternate, exstipulate, deciduous; stalked, usually cordate or peltate, palmately veined, and always with the middle nerve terminating in an awn or point. *Flowers* in axillary racemes in most species, small. — The species in British gardens are included in the genera Menispérmum and Cócculus, which are thus contradistinguished: —

Menispe'rmum *L.* Sepals and petals quaternary. Male flowers with 15—20 stamens.

Co'cculus *Bauh.* Sepals and petals ternary. Male flowers with 6 stamens

### Genus I.

MENISPE'RMUM *L.* The Moonseed *Lin. Syst.* Diœ'cia Dodecándria.

*Identification.* Tourn.; Dec. Prod., 1. p. 102.; Don's Mill, 1. p. 112.; Tor. and Gray, 1. p. 48.
*Synonymes.* Ménisperme, *Fr.*; Mondsaame, *Ger.*
*Derivation.* From *mēnē*, the moon, and *sperma*, a seed; from the seeds being crescent-shaped.

*Gen. Char.* *Sepals* and *petals* disposed in a quaternary order, in two or three series. *Male flowers* with 16 to 20 stamens; *female flowers* with 2 to 4 ovaries. *Drupe* baccate, roundish-kidney-shaped, 1-seeded. — Climbing shrubs natives of North America and Dauria.

*Leaves* simple, alternate, peltate or cordate, entire, smooth. *Peduncles* axillary, or supra-axillary. Male and female peduncles rather dissimilar. *Flowers* small, greenish white. — The species are all of the easiest culture in common soil, and are propagated by dividing the root, or by cuttings.

♃ 1. M. CANADE'NSE. The Canadian Moonseed.

*Identification.* Lin. Sp.; Dec. Prod., 1. p. 102.; Don's Mill., 1. p. 112.; Tor. and Gray, 1. p. 48.
*Synonymes.* M. canadénse var. α *Lamarck*; M. angulâtum *Moench*; Ménisperme du Canada, *Bon. Jard.*; Canadischer Mondsaame, *Ger.*
*Engravings.* Schkuhr. H., 3. t. 337.; Lam. Dict., t. 824.; and our *fig.* 48.

*Spec. Char., &c.* Leaves peltate, smoothish, somewhat cordate, roundish-angular; angles bluntish, terminal one abruptly awned, mucronate. Racemes solitary, compound. Petals 8. (*Don's Mill.*) A deciduous, suffruticose, long, slender twiner. Canada to Carolina. Height 8 ft. to 12 ft. Introduced in 1713. Flowers small, greenish yellow; June and July. Berry black; ripe in September. Decaying leaves greenish brown.

48. Menispér. canadénse.

*Varieties.*

♃ *M. c.* 2 *lobàtum* Dec. M. virgínicum *L.* (Dill. Elth., t. 178. fig. 219.) — This variety is distinguished by the angles of the leaves being acutish, and the flowers of a greenish white.

♃ *M. c.* 3 *smilácinum.* M. *smilácinum Dec.* (Jac. Icon., t. 269.; and our *fig.* 49.) — Leaves smoother, and racemes more simple than in the species.

49. Menispérmum canadénse smilácinum.

Roots thick and woody, with numerous very slender shoots, which, though somewhat ligneous, never attain any considerable diameter, and are not of many years' duration. The stem twines in a direction contrary to the sun's apparent motion, and is smooth and even, having more the appearance of a herbaceous plant, than of a shrub.

♃ 2. MENISPE'RMUM DÄU'RICUM *Dec.* The Daürian Moonseed.

*Identification.* Dec. Prod., 1. p. 102.; Don's Mill., 1. p. 112.
*Synonymes.* Trilophus Ampelisâgria *Fisch.*; M. canadénse var. β *Lam.*
*Engravings.* Deless. Icon., 1. t. 100.; and our *fig.* 50.

*Spec. Char., &c.* Leaves peltate, smooth, cordate, angular; angles acute, terminal one acuminated hardly mucronate. Racemes in pairs, capitulate. (*Don's Mill.*) A twining, deciduous, suffruticose shrub. Dauria, on rocky hills, near the river Chilca. Height 5 ft. to 10 ft. Introduced in 1818. Flowers yellowish; June and July. Berries black; ripe in September.

50. Menispérmum däùricum.

Resembles the preceding species, and probably only a variety of it.

## GENUS II.

♃ CO'CCULUS *Bauh.* THE COCCULUS. *Lin. Syst.* Diœ'cia Hexándria.

*Identification.* Bauh. Pin., 511.; Dec. Prod., 1. p. 96.; Don's Mill., 1. p. 104.

*Synonymes.* Menispérmum *L.*; Wendlándia Willd.; Andróphilax *Wendl.*
*Derivation.* From *coccus*, the systematic name of cochineal; which is applied to this genus on account of the greater number of the species bearing scarlet berries.

*Gen. Char.* *Sepals* and *petals* disposed in a ternary order, in 2, very rarely in 3, series. *Male flowers* with 6 free stamens opposite the petals; *female* ones with 3 or 6 carpels. *Drupes* baccate, 1 to 6, usually obliquely reniform, somewhat flattened, 1-seeded. *Cotyledons* distant. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous; cordate or ovate, entire or lobed. *Flowers* small. — The only hardy species is C. carolìnus, a native of Carolina, of the same culture as Menispérmum.

1. Co'cculus caroli'nus *Dec.* The Carolina Cocculus.

*Identification.* Dec. Prod., 1. p. 98.; Don's Mill., 1. p. 107.
*Synonymes.* Menispérmum carolìnum *Lin.*; Wendlándia populifòlia *Willd.*, *Pursh*, and *Dill.*; Andróphilax scándens *Wendl.*; Baumgártia scándens *Moench*; Ménisperme de la Caroline, *Fr.*; Carolinischer Mondsaame, *Ger.*
*Engravings.* Dil. Elth., 223. t. 178. f. 219.; Wendl. Obs., 3. t. 16.; and our *fig.* 51.

*Spec. Char., &c.* Leaves cordate or ovate, entire, obtuse, and somewhat 3-lobed; under surface velvety pubescent. Male racemes floriferous from the base, female ones 3-flowered. (*Don's Mill.*) A twining, deciduous, suffruticose shrub. North Carolina and Georgia. Height 6 ft. to 10 ft. Introduced in 1759. Flowers small, greenish; June and July. Fruit red; ripe in September. Decaying leaves yellowish or brownish.

Leaves extremely variable in form, 2 in. to 4 in. long, often quite entire, but usually with several sinuated, obtuse lobes. Drupe red, as large as a small pea.

51. Cócculus carolìnus.

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## Order VI. *BERBERA'CEÆ.*

*Ord. Char.* *Sepals* usually 6, in two whorls, deciduous, and furnished with petal-like scales on the outside. The *petals* are equal in number with the sepals, and the *stamens* equal in number with the petals, and opposite to them. The *anthers* "open by reflexed valves; that is to say, the face of each cell of the anther peels off except at the point, where it adheres as if it were hinged there;" a structure so remarkable, Dr. Lindley observes, as to be "found in no European plants except *Berberàceæ* and the laurel tribe." (*Penny Cyc.*, vol. iv. p. 259.) — Bushy shrubs, which throw up numerous suckers; natives of the temperate climates of Europe, Asia, and North America.

*Leaves* simple or compound, alternate, generally exstipulate, deciduous or persistent; shoots generally furnished with prickles; the sap, and the colour of the leaves and bark, more or less yellow. *Flowers* generally yellow. — The genera containing species hardy in British gardens are two, *Bérberis* and Mahònia, which are thus contradistinguished:—

*Be'rberis* L. Petals with 2 glands on the inside of each. Stamens toothless. Leaves undivided.

Maho'nia Nutt. Petals without glands. Stamens furnished with a tooth on each side. Leaves pinnate.

## GENUS I.

### *BE'RBERIS* L. THE BERBERRY. *Lin. Syst.* Hexándria Monogýnia.

*Identification.* Lin. Gen., 442.; Dec. Prod., 1. p. 105.; Don's Mill., 1. p. 114.
*Synonymes.* Pipperidge Bush; E'pine vinette, *Fr.*; Berberitze, *Ger.*
*Derivation.* *Berberys* is the Arabic word used for this plant by Averrhoes and other writers on medicine; but some persons derive the name from the Greek word *berberi*, signifying a shell, from the leaves of the common species having a hollow surface. Bochart says that the word *Bérberis* is derived from the Phœnician word *barar*, which signifies shining like a shell, from their shining leaves. Gerard says that the word Berbery is a corruption of *amyrberis*, the name given to the plant by Avicenna. Du Hamel says that *Bérberis* is derived from an Indian word signifying mother of pearl. Pipperidge bush, or piprage tree, Gerard says, is Dr. Turner's name for the plant, and it is still given to it in Cambridgeshire. E'pine vinette signifies the acid, or sorrel, thorn, from the taste of the fruit and leaves.

*Gen. Char.* *Sepals* 6, guarded on the outside by 3 scales. *Petals* 6, with 2 glands on the inside of each. *Stamens* toothless. *Berries* 2—3-seeded. *Seeds* 2, rarely 3, laterally inserted at the base of the berries, erect, oblong, with a crustaceous coat and fleshy albumen. *Cotyledons* leafy, elliptical. *Radicle* long, capitellate at the tip. (*Don's Mill.*) *B.* heterophýlla *Juss.* has toothed stamens.

*Leaves* simple, alternate, exstipulate, deciduous or evergreen; toothed or serrated, coriaceous, with numerous small leaves produced at the axils of the larger ones, often abortive in the form of prickles. *Flowers* yellow. *Fruit* red, in some kinds black, purple or white in others.—Shrubs natives of Europe, North America, and Asia; characterised in a general view by being crowded with suckers, and having axillary tufts of leaves and spines.

The species are all readily propagated by seeds which most of them ripen in England; and also by side suckers and root suckers, which almost all of them throw up in abundance.

A. *Leaves thin, deciduous. Flowers solitary.*

1. *B.* SIBI'RICA *Pall.* The Siberian Berberry.

*Identification.* Pall. Fl. Ross., 2. p. 42.; Dec. Prod., 1. p. 108.; Don's Mill., 1. p. 117.; Pen. Cyc., 4. p. 260.
*Synonymes.* *B.* altàica *Pal.*; Vinettier de Sibérie, *Fr.*
*Engravings.* Pall. Fl. Ross., 2. t. 67.; and our *fig.* 52. after Hayne, and *fig.* 53. after Pallas.

52. *Bérberis* sibírica.

*Spec. Char., &c.* Spines 3—7-parted. Leaves lanceolate-obovate, ciliately serrated. Peduncles 1-flowered, shorter than the leaves. (*Don's Miller.*) An erect deciduous shrub. Siberia, on hills and the lower mountains. Height 2 ft. to 3 ft. Introduced in 1790. Flowers yellow; May and June. Berry red; ripe in September.

53. *Bérberis* sibírica.

B. *Leaves thin, mostly deciduous. Flowers in Racemes.*

2. *B.* VULGA'RIS *L.* The common Berberry.

*Identification.* Lin. Sp., 472.; Dec. Prod., 1. p. 105.; Don's Mill., 1. p. 115.
*Synonymes.* *B.* ætnénsis *Presl*; *B.* macrocárpa of some; Pipperidge Tree, *Dr. Turner*; E'pine vinette, *Fr.*; gemeine Berberitze, *Ger.*
*Engravings.* Eng. Bot., t. 49.; Willd. Baum., t. 39.; and our *fig.* 54., in which *a* is a specimen in flower, *b* a specimen in fruit, *c* a flower of the natural size, and *d* a fruit of the natural size.

*Spec. Char., &c.* Spines 3-parted. Leaves somewhat obovate, ciliately serrated. Racemes many-flowered, pendulous. Petals entire. (*Don's Mill.*) A spreading, many-stemmed, deciduous shrub. Europe, and Britain in hedges and copses, and naturalised in many parts of Asia and America. Height 6 ft. to 10 ft. Flowers yellow; May and June. Berries red; ripe in September. Decaying leaves reddish yellow. Naked wood yellowish white.

54 *Bérberis* vulgàris.

*Varieties.*

- B. *v.* 2 *lùtea.* — Fruit yellow, sometimes stoneless.
- B. *v.* 3 *álba.*—Fruit white.
- B. *v.* 4 *violàcea.* — Fruit violaceous.
- B. *v.* 5 *purpùrea.* *B.* innominàta *Kalm.* — Fruit purple; leaves narrow, hardly ciliated.
- B. *v.* 6 *nìgra.* — Fruit black; leaves oblong, ciliately serrated, serratures few. The fruit of this plant is said by Tournefort, who found it on the banks of the Euphrates, to be of delicious flavour.
- B. *v.* 7 *dúlcis.*—Fruit red, somewhat less acid than that of the common berberry. Leaves of a bright shining green. Native of Austria, where it was first considered to be a distinct species, till the fruit of plants raised from its seed was found to be as acid as that of the common berberry. It is now, however, propagated by layers; the leaves and fruit are considerably larger than those of the species, and the fruit is found perfectly sweet and agreeable to eat. In short, this variety is to the common berberry, what the apple is to the crab.
- B. *v.* 8 *aspérma.* *The seedless Berberry.* — Fruit destitute of seeds. Miller, and also Du Hamel, both say that suckers taken from this variety commonly produce fruit with seeds; that, as the tree grows older, the seeds become fewer, and that it is the age of the plant that at last causes the fruit to be seedless; in that case this plant must be considered more a variation than a variety. *B.* v. aspérma is said by Du Hamel to produce the best fruit for preserving; and it is from it that the delicious *Confitures d'E'pine vinette*, for which Rouen is so celebrated, are made. (*Nouv. Duh.*, iv. p. 13.)
- B. *v.* 9 *longifòlia* Booth. — Leaves longer than those of the species.
- B. *v.* 10 *glaúca.* *B.* glaúca *Booth.* — Leaves glaucous. Mr. Gordon considers this plant as related to *B.* sibíríca; but, as it has not yet flowered in the Horticultural Society's Garden this point cannot be determined. (See *Gard. Mag.*, vol. xvi. p. 2.)
- B. *v.* 11 *mìtis.* — Shoots without spines. Leaves glaucous, rather broader.
- B. *v.* 12 *provinciàlis* Schrad. — Young shoots brown. Leaves and fruit as in the common berberry.

All these varieties are in the London Horticultural Society's Garden.

*Other Varieties.* In the Horticultural Society's Garden a number of alleged species of berberries have been raised from seed, which have all proved varieties of *B.* vulgàris, and most of them so slight, as to be scarcely worth keeping distinct. (See *Gard. Mag.*, vol. xvi. p. 2.)

The common berberry will live for two or three centuries, without increasing much in size. The wood is hard and brittle, of a yellow colour, and but little used except for dyeing. The rate of growth, when the plant is young, is rapid; and, in consequence, in five or six years it will attain the height of

7 or 8 feet; but it grows slowly afterwards, unless the suckers are removed from it as they are produced. It is seldom seen above 10 ft. high; but there are examples of trees of it 30 ft. high, probably of 30 years' growth. The inner bark, both of the stems and roots, affords a yellow dye. The leaves are agreeably acid, and, according to Gerard, were used in his time "to season meat with, and instead of a salad, like sorrel." The berries are so acid, that birds seldom touch them. They are not eaten raw, but are excellent when preserved with sugar in syrup, or candied. They are also made into jelly and rob, both of which are not only delicious to the taste, but extremely wholesome; and they are pickled in vinegar, when green, as a substitute for capers. The plant is cultivated in gardens as a fruit tree or fruit shrub; and the variety, or rather variation, in which the seeds are said to be wanting, and that in which the fruit is sweet, are recommended in preference. The plant makes an excellent hedge; but there exists a prejudice against it among agriculturists, from its supposed influence in producing blight, or mildew, on the corn adjoining it. This opinion is of unknown antiquity; but it is now generally considered to be an erroneous prejudice.

### ✠ 3. *B.* (v.) EMARGINA'TA *Willd.* The emarginate-*petaled* Berberry.

*Identification.* Willd. Enum., 1. p. 395.; Dec. Prod., 1. p. 105.; Don's Mill, 1. p. 115.
*Synonyme.* Ausgerandete (serrated) Berberitze, *Ger.*
*Engravings.* Hayne Abbild., t. 62.; and our *figs.* 55. and 56.

*Spec. Char., &c.* Spines 3-parted. Leaves lanceolate-obovate, ciliately serrated. Racemes scarcely pendulous, shorter than the leaves; petals emarginate. (*Don's Mill.*) A deciduous shrub. Siberia. Height 5 ft. to 7 ft. Introduced in 1820. Flowers yellow; May and June. Berries red; ripe in September. Decaying leaves yellow. Naked young wood whitish yellow.

55. *Bérberis* emarginàta.

56. *Bérberis* emarginàta.

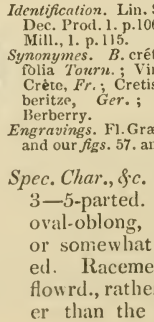
Closely resembling *B.* vulgàris, of which it is, doubtless, only a variety; but it is one half smaller in all its parts, and has the petals emarginate, and the leaves decidedly glaucous.

### ✠ 4. *B.* (v.) CRE'TICA *L.* The Cretan Berberry.

57. *Bérberis* crética.

*Identification.* Lin. Sp., 472.; Dec. Prod. 1. p. 106.; Don's Mill., 1. p. 115.
*Synonymes.* *B.* crética *buxifolia Tourn.*; Vinettier de Crète, *Fr.*; Cretische Berberitze, *Ger.*; Candian Berberry.
*Engravings.* Fl. Græc., t. 242.; and our *figs.* 57. and 58.

*Spec. Char., &c.* Spines 3—5-parted. Leaves oval-oblong, entire, or somewhat serrated. Racemes 3—8-flowrd., rather shorter than the leaves.


58. *Bérberis* crética, nat. size.

(*Don's Mill.*) A deciduous shrub, crowded with shoots. Crete, Candia, and, perhaps, Japan. Height 3 ft. to 4 ft. Introduced in 1759. Flowers yellow; May and June. Berries ovate, black; ripe in September. Decaying leaves whitish yellow. Naked young wood also whitish.

The leaves are produced without any obvious order; they are small, and in their shape they resemble those of the narrow-leaved variety of the common box. The berries are ovate, black, 2-seeded, more astringent than acid; stigma on a very short style.

### 5. *B.* (v.) CRATÆ'GINA *Dec.* The Cratægus-like Berberry.

*Identification.* Dec. Syst., 2. p. 9.; Don's Mill., 1. p. 116.
*Engraving.* Our *fig.* 59. from a specimen in the Hort. Soc. Garden.

*Spec. Char., &c.* Spines simple. Leaves oblong, reticulated, hardly serrated. Racemes many-flowered, crowded, spreading, scarcely longer than the leaves. (*Don's Mill.*) A deciduous glaucous-leaved shrub. Asia Minor. Height 4 ft. to 6 ft. Introduced in 1823. Flowers yellow; May and June. Berries red; ripe in September.

Distinguished from all the other species, by the leaves being long, flaccid, entirely glaucous, or whitish Young shoots brown.

59. *Bérberis* cratæ'gina, nat. size.

A plant bearing this name in the Horticultural Society's Garden is 5 ft. high, with the leaves much longer than those of *B.* vulgàris; serrated, as in that species, and decidedly glaucous. In other respects we can see no difference.

### 6. *B.* IBE'RICA *Stev.* The Iberian Berberry.

*Identification.* Don's Mill., 1. p. 115.; and Lindl., Pen. Cyc., 4 p. 61.
*Synonymes.* *B.* vulgàris ? v. ibérica *Dec. Syst.* 2. p. 6 ; *B.* sinénsis *Wal.*
*Engravings.* Dend. Brit., t. 26., as *B.* sinénsis; and our *fig.* 60.

*Spec. Char., &c.* Spines simple, and 3-parted; leaves obovate-oblong, quite entire. Racemes many-flowered; petals entire. (*Don's Mill.*) A deciduous shrub. Iberia. Height 3 ft. to 5 ft. Introduced in 1790. Flowers yellow; May and June. Berries dark purple; ripe in September. Decaying leaves yellowish red. Naked young wood reddish yellow.

Readily distinguished from the common berberry by its smaller and smoother leaves, its red shoots, and its almost upright racemes; and from *B.* sinénsis by the leaves being comparatively entire.

60. *B.* ibérica.

### 7. *B.* CANADE'NSIS *Mill.* The Canadian Berberry.

*Identification.* Pursh's Fl. Amer. Sept., 1. p. 219.; Dec. Prod., 1. p. 106.; Don's Mill., 1. p. 115. Tor. and Gray, 1. p. 50.
*Synonymes.* *B.* vulgàris *Mx. Fl. Bor. Amer.*, 1. p. 205.; *B.* vulgàris var. canadénsis *Martyn's Mill.*, No. 1.
*Engravings.* Hayne Abbild., t. 63.; and our *fig.* 61. after that author.

*Spec. Char., &c.* Branches verrucose, dotted, with short triple spines; leaves spatulate, oblong, remotely serrate, with somewhat bristly teeth; racemes sub-corymbose, few-flowered; petals emarginate; berries subglobose, or oval. (*Tor. and Gray.*) A deciduous shrub. Canada to Georgia. Height 2 ft. to 3 ft., in England 5 ft. Introduced in 1759. Flowers yellow;

May and June. Berries red; ripe in September. Decaying leaves yellowish green and reddish. Naked young wood whitish yellow.

Leaves much smaller and narrower than in *B.* vulgàris, attenuate at the base, but nearly sessile; the margins serrulate, with 6–8 distant, often inconspicuous, mucronate teeth. Raceme 5–8-flowered, nodding; flowers smaller than in *B.* vulgàris; fruit smaller and much shorter. Stem and roots yellow; the former rarely exceeding 3 ft. in height. Found in the Alleghany Mountains, Virginia and Carolina, Tenessee, and Georgia. (*Tor. and Gray.*) Introduced into England in 1759, but probably lost, as we have seen no plant answering this description in British gardens.

61. *B.* (v.) canadénsis.

### ✠ 8. *B.* SINE'NSIS *Desf.* The Chinese Berberry.

*Identification.* Desf. Catal. Hort. P., 150.; Dec. Prod., 1. p. 106.: Don's Mill., 1. p. 115.
*Synonyme.* *B.* vulgàris *Thunb. Jap.* 1. p. 146.
*Engravings.* Our *figs.* 62. and 63. from a specimen in the Hort. Soc. Garden.

*Spec. Char., &c.* Spines 3-parted. Leaves oblong, obtuse, entire, or the lower ones a little toothed. Racemes many-flowered, nodding. (*Don's Mill.*) A deciduous shrub with slender shoots. China. Height 3 ft. to 5 ft. Introduced in 1800. Flowers yellow; May and June. Berries oval, dark red; ripe in September. Leaves smooth, sharply serrated. Decaying leaves of a fine yellowish red. Naked young wood reddish yellow.

The plant at the Horticultural Society's Garden, and at Messrs. Loddiges's, has smooth leaves, red shoots, and closely resembles *Bérberis* ibérica.

62. *Bérberis* sinensis.

63. *Bérberis* sinensis, nat. size.

C. *Leaves leathery, evergreen, or sub-evergreen. Flowers solitary, or in Clusters.*

9. *B.* DU'LCIS *D. Don.* The sweet-*fruited* Berberry.

*Identification.* Swt. Brit. Fl.-Gard.; Lindl. Pen. Cyc., 4. p. 261.
*Engravings.* Swt. Brit. Fl. Gard., 2d ser., t. 100.; and our *fig.* 64.

*Spec. Char., &c.* Spines long, slender, simple, or 3-parted. Leaves obovate obtuse, with or without a bristly point, quite entire, glaucous on the under side. Flowers solitary, on slender stalks, twice as long as the leaves. (*Lindl., Pen. Cyc.,*) An evergreen shrub, with shining leaves. Straits of Magellan to Valdivia. Height 2 ft. to 5 ft. Introduced in 1830. Flowers yellow; March to June. Berries round, black, about the size of a black currant; ripe in August. Decaying leaves bright yellow; dropping in May and June.

64. *Bérberis* dúlcis.

An elegant evergreen bush, which, in some places, has attained the height of 5 ft. The flowers are large, of a fine bright yellow, more expanded than they are in many species, and, from their long slender stalks, they hang down in a very graceful manner. In its native country, the fruit is used, both green and ripe, as we use gooseberries, for making pies and tarts and preserves, for which it is most excellent. It is quite hardy and evergreen.

10. *B.* BUXIFO`LIA *Lam.* The Box-leaved Berberry.

*Identification.* Lam. Ill., t. 253. fig. 3.; Don's Mill., 1. p. 117.
*Engravings.* Lam. Ill. t. 253. fig. 3.; and our *fig.* 65.

*Spec. Char., &c.* Spines 3-parted. Leaves ovate, or ovate-lanceolate, smooth, quite entire. Pedicels longer than the leaves, either solitary, 1-flowered, or in threes, rising from a short peduncle. (*Don's Mill.*) A small twisted sub-evergreen shrub. Native of the Straits of Magellan. Height 2 ft. to 3 ft. Introduced ?. Flowers yellow. December to March. Berries bluish purple, 4-seeded.

65. *Bérberis* buxifolia.

Said to be nearly allied to *B.* dúlcis. A very valuable addition to our hardy evergreens; though, at present, rare in British gardens.

11. *B.* ACTINACA'NTHA *Mart.* The ray-spined Berberry.

*Identification.* Rœmer and Schultes, 7. p. 12.; Hook. Bot. Mis., 3. p. 135.
*Engraving.* Our *fig.* 66.

*Spec. Char., &c.* Spines palmate, 3—5 divisions. Leaves ovate elliptic, rigid, coriaceous, toothed, mucronate. Peduncles 4—5, sub-umbellate, shorter than the leaves. An evergreen shrub, with numerous spreading branches, and long white spines, generally in threes, but sometimes more numerous. Straits of Magellan. Height 3 ft. to 4 ft. Introduced ? 1830. Flowers deep yellow, a little larger than those of *B.* vulgàris; May and June. Fruit ?.

66. *Bérberis* actinacántha.

A very desirable species, nearly allied to *B.* heterophýlla. Our engraving is of a specimen taken from a very handsome plant in the rich collection of evergreens at Elvaston Castle. Dr. Hooker mentions a variety with smaller leaves than the species, but it does not appear to be introduced. Quite hardy.

12. *B.* HETEROPHY'LLA *Jus.* The various-leaved Berberry.

*Identification.* Juss. in Poir. Dict., 8. p. 622.; Dec. Prod., 1. p. 108.; Don's Mill., 1. p. 117.; Lindl., Pen. Cyc., 4. p. 261.
*Synonymes.* *B.* ilicifòlia *Forst.*; *B.* triscupidàta *Smith.*
*Engravings.* Hook. Exot. Fl., 1. t. 14.; and our *fig.* 67.

67. *B.* heterophýlla.

*Spec. Char., &c.* Spines 3-parted. Leaves ovate-lanceolate, glabrous, some of them entire, others furnished with 3 pungent teeth. Pedicels solitary, 1-flowered, hardly longer than the leaves. Filaments toothed. (*Don's Mill.*) An evergreen shrub. Straits of Magellan. Height 3 ft. to 4 ft. Introduced in 1823. Flowers orange yellow; May and June. Berries red; ripe in September. Decaying leaves greenish yellow; June and July.

Much branched, and the older branches covered with dark wrinkled bark. The leaves clustered, and of two kinds; the old ones terminated with a sharp spinose point, and having a lateral spinule on each side above the middle, and the younger ones being pale green, unarmed, and having their margins entire and softish. The old leaves are also quite rigid, dark green, and shining.

13. *B.* EMPETRIFO'LIA *Lam.* The Empetrum-leaved Berberry.

*Identification.* Lam. Ill., t. 253.; Dec. Prod., 1. p. 107.; Don's Mill., 1. p. 117.; Pen. Cyc., 4. p. 261.
*Engravings.* Lam. Ill., t. 253. fig. 4.; Sw. Brit. Fl.-Gar., 2. s. t. 350.; and our *fig.* 68.

68. *B.* empetrifolia.

*Spec. Char., &c.* Spines 3-parted. Leaves linear, quite entire, with revolute margins. Pedicels 1—2, 1-flowered. (*Don's Mill.*) An elegant, decumbent, evergreen bush. Cordilleras of Chili in subalpine woods. Height 1 ft. to 2 ft. Introduced in 1830. Flowers yellow; December to March. Berries ? yellow; ripe in July. Wood reddish brown.

Branches slender, twiggy, angular, covered with a chestnut-coloured bark. Leaves fasciculate, linear, mucronate, revolute, and entire at the margins, glaucous; about half an inch long, and nearly a line in breadth. Flowers large, spreading. A very curious and pretty plant, in general aspect much more like a heath than a berberry. It is perfectly hardy, and deserves a place in every collection. It is readily increased by layers, in heath soil.

D. *Leaves leathery, evergreen or sub-evergreen. Flowers in Racemes.*

14. *B.* DEALBA'TA *Lindl.* The whitened-*leaved* Berberry.

*Identification.* Bot. Reg., t. 1750.; Pen. Cyc., 4. p. 261.
*Synonyme.* *B.* glaúca *Hort.*
*Engravings.* Bot. Reg., t. 1750.; and our *fig.* 69.

69. *Bérberis* dealbata.

*Spec. Char., &c.* Spines scarcely any. Leaves roundish, coarsely toothed, rather glaucous, white beneath. Racemes very short and compact, pendulous. (*Pen. Cyc.*) An upright evergreen bush, with white or glaucous leaves. Mexico. Height 3 ft. to 5 ft. Introduced in 1830. Flowers yellow, sweet-scented; December to March. Berries yellowish purple; ripe in August.

A tall, slender, evergreen bush, with deep brown branches, and scarcely any spines. The leaves are sometimes wedge-shaped and 3-toothed, but more frequently nearly round, with two or three spiny teeth on every side. A curious and beautiful species, well deserving of cultivation. It is quite hardy, and readily increased by layers, which root the same season that they are made.

### ♣ 15. *B.* ASIA'TICA *Roxb.* The Asiatic Berberry.

*Identification.* Roxb. in Dec. Syst., 2. p. 13.; Dec. Prod., 1. p. 107.; Don's Mill., 1. p. 116; Pen. Cyc., 4. p. 261.
*Synonymes.* The Lycium of Dioscorides, *Royle* in *Linn. Trans.*, xvii. p. 83.; *B.* tinctòria *Lech.*; the Raisin Berberry, *Pen. Cyc.*
*Engravings.* Deless. Icon. sel., 2. t. 1.; and our *fig.* 70.

*Spec. Char., &c.* Spines trifid, or simple. Leaves oval, cuneated or elliptical, mucronate, smooth, under surface glaucous, entire or spinulosely toothed. Racemes short, many-flowered, corymbose, shorter than the leaves. Pedicels elongated, one-flowered. Berries oval. (*Don's Mill.*) A vigorously growing sub-evergreen shrub, crowded with numerous luxuriant suckers. Nepal, on mountains. Height 6 ft. to 8 ft. Introduced in 1820. Flowers yellow; May and June. Berries purplish, with a fine bloom; ripe in July. Decaying leaves yellow and red.

70. *Bérberis* asiática.

Leaves somewhat resembling those of *B.* heterophýlla, but not glaucous. The plant is easily distinguished from that species by the very short racemes of its flowers, by their being produced much earlier, and by the smoothness of its shoots. On July 20. 1837, a fine plant of *B.* asiática, in the grounds at Syon, was covered with fruit, while one of *B.* aristàta, standing close beside it, was covered with its beautiful rich yellow blossoms, many of which were not fully expanded. The fruit is oblong, pinkish or purplish, wrinkled, and covered with a fine thick bloom like that of the best raisins. The plants in 5 or 6 years attain the height of 6 or 8 feet.

### ♣ 16. *B.* ARISTA'TA *Dec.* The bristled-*tooth-leaved* Berberry.

*Identification.* Dec. Prod., 1. p. 106.; Don's Mill., 1. p. 115.
*Synonymes.* *B. Chitria* Buch.; *B.* angustifòlia *Roxb.*; *B.* sinénsis *Desf.*
*Engravings.* Hook. Exot. Flor., t. 98.; Bot. Reg., t. 729.; and our *fig.* 71

*Spec. Char., &c.* Lower spines 3-parted, simple; leaves obovate-acute, tapering much to the base, ending in a mucro (prickly point) at the apex, membranous, smooth on both sides, serrated, with 4 or 5 bristly teeth. Racemes nodding, many-flowered, longer than the leaves. Berries oblong. (*Don's Mill.*) A vigorous-growing sub-evergreen shrub, crowded with suckers which sometimes grow 8 ft. to 9 ft. long in a season. Nepal, on mountains 5000 ft. to 8000 ft. of elevation. Height 6 ft. to 10 ft. Introduced in 1820. Flowers yellow; June and July. Berries purplish, with a fine bloom; ripe in September. Decaying leaves yellow and scarlet. Naked young wood yellowish brown.

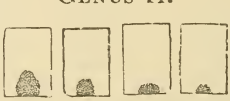
71. *Bérberis* aristàta.

Very distinct from any of the preceding species or varieties, growing with extraordinary vigour, and capable of being formed into a very handsome small

tree. The root and wood are of a dark yellow colour, and form the yellow wood of Persian authors; they are used as a dye, and, being bitter and a little astringent, they, as well as the bark, are employed in medicine. (*Royle's Illust.*, p. 63.) In Nepal, the fruit of this species is dried, like grapes for forming raisins, in the sun. A most desirable plant, calculated to produce a splendid effect, both when in flower and when in fruit, upon an open lawn. As a rapid grower, it ought not to be planted near slow-growing shrubs or trees.

*Other Species of* Bérberis. — B. *Coriària* Royle, a species having the same general appearance as *B.* aristàta, has been raised in the Horticultural Society's Garden, and there are plants 3 ft. high, but they have not yet flowered. Plants have been raised in the Horticultural Society's Garden, and in some nurseries, from seeds received from Mexico and Nepal; but, though these have new names, it is not certain that they will all prove new species, and therefore we consider it better not to record them till they have flowered. In *Hook. Bot. Mis.* vol. iii., B. *chilénsis* Gill., B. *ruscifòlia* Lam., B *corymbòsa* Hook. et Arn., B. *glomeràta* Hook. et Arn., and B. *Grevilleàna Gill.*, are described, or mentioned, as having been found in South America, and Dr. Hooker has specimens of them in his herbarium. Numerous varieties of *Bérberis* vulgàris are raised in the London gardens, under continental names, as if they were species, but very few of them are worth keeping distinct. See in *Gard. Mag.* for 1840, p. 1., Mr. Gordon's Report on those raised in the Horticultural Society's Garden in 1839.

## Genus II.



MAHO'N*IA* Nutt. The Mahonia, *or Ash Berberry.* *Lin. Syst.* Hexándria Monogýnia.

*Identification.* Nutt. Gen. Amer., 1. p. 307.; Dec. Prod., 1. p. 108.; Don's Mill., p. 117.
*Synonymes.* *Bérberis* of authors; Odostèmon *Raf.*; Ash Berberry *Pen. Cycl.*
*Derivation.* Named by Nuttall in honour of *Bernard M'Mahon*, a seedsman at Philadelphia, the author of the *American Gardener's Calendar*, and an ardent lover of botanical science.

*Gen. Char. Sepals* 6, guarded on the outside by three scales. *Petals* 6, without glands on the inside. *Stamens* furnished with a tooth on each side at top of the filament. *Berries* 3—9-seeded. (*Don's Mill.*)

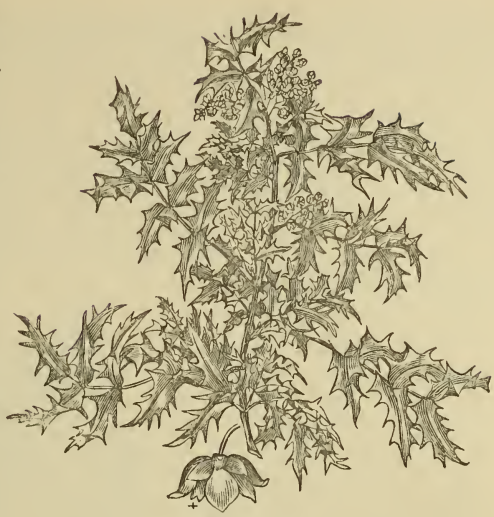
*Leaves* compound, pinnate, alternate, exstipulate, evergreen; the leaflets coriaceous, with the margins toothed or serrated. *Flowers* yellow. *Fruit* mostly black. — Natives of the north-west coast of America, and also of Nepal, and perhaps Japan.

Though some botanists think that the characters ascribed to this genus, and those ascribed to *Bérberis*, as exhibited in p. 41., are not sufficient to keep them separate as genera; yet the habits of the species of one, as to the mode of growth, foliage, and inflorescence, are so distinct from those of the other, as to induce us to adopt the genus Mahòn*ia*. The species in British gardens are all of comparatively slow growth, and admit but of slow multiplication by layers, which require to remain on two years, and scarcely at all by cuttings. Some of them, however, seed freely, and are readily propagated in this way. The seeds of all the species of Mahòn*ia*, and also of those of *Bérberis*, if sown immediately after they are ripe, and protected through the winter from frost, will come up the following spring.

1. M. fascicula'ris *Dec.* The crowded-*raceme*d Mahonia, *or Ash Berberry.*

*Identification.* Dec. Prod., 1. p. 108.; Don's Mill., 1. p 118.
*Synonymes.* *Bérberis* pinnàta *Lag.*, *Bot. Reg.*, *Bot. Mag.*, and *Tor. & Gray*; *B.* fasciculàris *Pen. Cyc.* In the same work it is stated that Mahòn*ia* diversifòlia is the same as this species; though it is figured and described by Sweet, as a species from Monte Video: see *Swt. Br. Fl.-Gar.*, 2d series, t. 56.
*Engravings.* Bot. Reg., t. 702.; Bot. Mag., t. 2396.; and our *fig.* 72.

*Spec. Char., &c.* Leaves of 3—6 pairs with an odd one, the lowest pair near the base of the petiole. Leaflets ovate-lanceolate, rather distant, one-nerved, spiny-toothed, with 4 or 5 teeth on each side. Racemes nearly erect, much crowded. Filaments bidentate. (*Don's Mil.*) An upright evergreen shrub. California and Mexico, on mountains. Height 5 ft. to 8 ft. Introduced in 1819. Flowers yellow; Mar. to May. Berries purple; ripe in September. Decaying leaves rich yellow; drop in June.



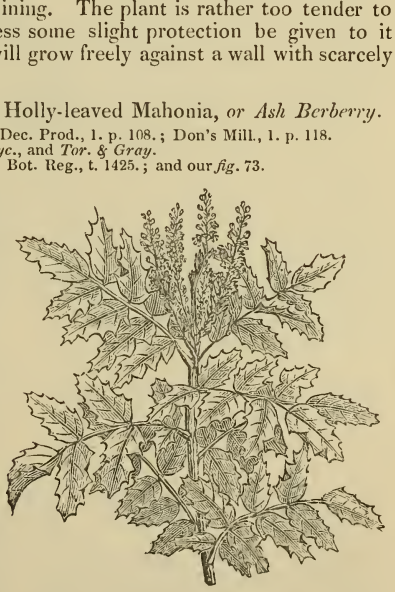
72. Mahònia fasciculàris.

Very handsome. "Perhaps the most showy of all the family." (*Hook.*) It is readily distinguished, even at a distance, from the other mahonias, by the glaucous green and subdued tone of colour of its leaves; those of all the others being of a darker green, and more or less shining. The plant is rather too tender to be treated as a detached bush, unless some slight protection be given to it during very severe frosts; but it will grow freely against a wall with scarcely any protection. Layers and seeds.

2. M. *Aquifo'lium Nutt.* The Holly-leaved Mahonia, *or Ash Berberry.*

*Identification.* Nutt. Gen. Amer., 1. p. 212.; Dec. Prod., 1. p. 108.; Don's Mill., 1. p. 118.
*Synonyme.* *Bèrberis Aquifòlium Ph., Pen. Cyc.*, and *Tor. & Gray.*
*Engravings.* Pursh. Fl. Amer. Sept. 1. t. 4.; Bot. Reg., t. 1425.; and our *fig.* 73.

*Spec. Char., &c.* Leaves of 4 pairs of leaflets with an odd one, the lower pair distant from the base of the petiole; leaflets ovate, approximate, cordate at the base, one-nerved, spiny-toothed, with 9 or 6 teeth on each side. Racemes erect, and much crowded. Filaments bidentate. (*D.'s Mill.*) A shining evergreen shrub. New Albion to Nootka Sound. Height 5 ft. to 7 ft. in its native country, probably 10 ft. in England. Introduced in 1823. Flowers yellow; April and May. Berries purple; ripe in September.



73. Mahònia Aquifòlium

*Varieties.* One variety, M. A. *nutkànum* Dec., is mentioned by De Candolle; and another, found at the junction of the Portage river with the Columbia, by G. Don. Torrey and Gray consider Mahònia rèpens and M. pinnàta *Menzies* as only varieties of this species; an inadvertence excusable in those who have not seen the plants in a living state.

One of the handsomest of evergreen shrubs, attaining the height of 6 ft. in 6 years, quite hardy, producing a profusion of bunches of yellow flowers during April and May. In its native country it grows in rich vegetable soil, among rocks, or in woods, where it forms a thick and rich undergrowth. According to Dr. Lindley, it is "perhaps the handsomest hardy evergreen we yet possess. Its foliage is of a rich, deep, shining green, becoming purple in the winter; it bears fruit in some abundance, which consists of clusters of roundish black berries, having their surface covered with a rich violet bloom. It most resembles M. fasciculàris, from which its large shining leaves at once distinguish it." (*Penny Cyc.*, iv. p. 262.) Layers and seeds.

n. 3. M. NERVO'SA *Nutt.* The nerved-*leaved* Mahonia, *or Ash Berberry.*

*Identification.* Nutt. Gen. Amer., 1. p. 212.; Don's Mill., 1. p. 118.
*Synonymes.* *Bérberis* nervòsa *Ph.*, and *Tor. & Gray*; Mahònia glumàcea *Dec.*; *Bérberis* glumàcea *Pen. Cyc.*
*Engravings* Pursh Fl. Amer., 1. t. 5.; Bot. Reg., t. 1426.; and our *fig.* 74.

74. Mahònia nervòsa.

*Spec. Char., &c.* Leaves of 5—6 pairs, with an odd one, the lower pair distant from the petiole; leaflets ovate, acuminated, and remotely spiny-toothed, somewhat 3—5-nerved, with 12 or 14 teeth on each side. Racemes elongated. Filaments bidentate. (*Don's Mill.*) An evergreen undershrub. North-west of N. America, on the river Columbia, in shady pine woods. Height 2 ft. to 3 ft. Introd. in 1822. Flowers yellow; October to March. Berries roundish, glaucous purple, or deep blue; ripe in July.

According to Torrey and Gray, the stem is so low, that it often scarcely rises from the ground, and, indeed, is much shorter than the leaves, which are 1 ft. to 2 ft. in length. Racemes spicate, often 6 in. to 8 in. long. Flowers larger than in M. Aquifòlium. The petioles of the leaves, Dr. Lindley says, "are jointed at every pair of leaflets, in the manner of a bamboo stem." The plant is hardy, and will thrive in a shady border of peat soil. One of the handsomest of undershrubs.

n. 4. M. RE'PENS *G. Don.* The creeping-*rooted* Mahonia, *or Ash Berberry.*

*Identification.* G. Don, in Loud. Hort. Brit., No. 28182.; and in Don's Mill., 1. p. 118.
*Synonymes.* *Bérberis* Aquifòlium *Lindl. Bot. Reg.*, t. 1176.; *Bérberis* rèpens *Pen. Cyc.* iv. p. 262.; *B.* Aquifòlium var. rèpens *Tor. & Gray.*, 1. p. 50.
*Engravings.* Bot. Reg., t. 1176.; and our *fig.* 75.

75. Mahònia rèpens.

*Spec. Char., &c.* Leaflets 2—3 pairs, with an odd one, roundish ovate, opaque,

spiny-toothed. Racemes diffuse. Root creeping. Filaments bidentate. (*Don's Mill.*) An evergreen undershrub. West coast of N. America, on the Rocky Mountains. Height 1 ft. to 2 ft. Introduced in 1822. Flowers yellow; April and May. Berries purplish black; ripe in September.

*Variety.*

* *M. r.* 2 *rèpens-fasciculàris.* — Habit of M. fasciculàris, with larger and more robust foliage, resembling that of M. rèpens. A sport, or a hybrid, produced accidentally in the Sawbridgeworth Nursery.

The shoots consist chiefly of short unbranched suckers, with the leaves somewhat glaucous on both surfaces. The racemes of flowers are terminal, numerous, fascicled, diffuse, rising from scaly buds. The plant, in British gardens, is perfectly hardy, and produces a profusion of rich yellow flowers in April and May. Layers or suckers; but it does not root readily. Seeds are sometimes produced.

*Other Species of Mahònia* are no doubt in British gardens; but as they have been only raised lately from Nepal or Mexican seeds, nothing can be recorded of them with that degree of certainty and detail which is suitable for this work. *Mahònia tenuifòlia*, a Mexican species with pinnate leaves, and entire quite smooth leaflets, on very long slender footstalks, has been raised in the Horticultural Society's Garden, and may probably be as hardy as M. fasciculàris; but this is uncertain. *M. nepalénsis*, *M. acanthifòlia*, *M. tragacanthòides*, and *M.* caraganæfòlia, are said to be very desirable species.

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## Section II.

*Carpella solitary, or connate; Placenta parietal (that Part of the Capsule which the Seeds are attached to adhering to the Sides or Walls of the Ovary or Germen), attached to the Walls or Cells of the Ovary.*

## Order VII. CRUCIA'CEÆ.

*Ord. Char.* The order Cruciàceæ is readily recognised by the cruciform arrangement of the *petals*, which are always four, in conjunction with tetradynamous *stamens*, and the *fruit* a silique or silicle. — Though there are several species which, technically considered, are ligneous plants, such as *A*lýssum saxátile, *I*bèris sempervìrens, Cheiránthus *Chèiri*, and some others; yet, in a popular point of view, the only shrub included in the order is the *V*élla Pseùdo-*C*ýtisus.

### Genus I.



*V*E'LLA *L.* The Vella. *Lin. Syst.* Tetradynàmia Siliculòsa.

*Derivation.* The word *V*èlla is Latinised from the word *velar*, the Celtic name of the cress.

*Gen. Char. Stamens* the 4 longer in 2 pairs, the 2 of each pair grown together. *Style* ovate, flat, tongue-shaped, at the tip of the silicle. *Silicle* ovate, compressed, its valves concave. *Partition* elliptic. *Cotyledons* folded, the embryo root disposed in the sinus of the fold. (*Dec. Syst.*)

*Leaves* simple, alternate, exstipulate, sub-evergreen; toothed or serrated, glaucous. *Flowers* in axillary spikes, yellow, seldom succeeded by seed pods in the climate of London.—Shrub low, suffruticose, native of Spain.

1. *V*E'LLA PSEU'DO-*C*Y'TISUS *L.* False-Cytisus, *or shrubby*, Cress-Rocket.

*Identification.* Lin. Sp. 895.; Dec. Prod., 1. p. 223.; Don's Mill., 1. p. 254.
*Synonymes.* *V*élla integrifòlia *Sal.*; Faux-cytise, *Fr.*; strauchartige (shrubby) Velle, *Ger.*
*Engravings.* Cav. Ic., 1. 42.; and our *fig.* 76.

*Spec. Char., &c.* Petals yellow, with long dark purple claws. Larger stamens perfectly connate by pairs. (*Don's Mill.*) A low sub-evergreen shrub. Spain, on calcareous hills. Height 2 ft. to 4 ft. Introd. in 1759. Flowers yellow; April and May. Silique greenish yellow; ripe in July. Decaying leaves yellow.

76. *V*élla Pseùdo-*C*ýtisus.

Branches arched, spreading, somewhat decumbent. Leaves glaucous green. Somewhat tender, but requires no protection in the climate of London, when planted on dry soil. It is a short-lived plant, like all the suffruticose Crucíferæ, but it may readily be renewed by cuttings or seeds.

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## ORDER VIII. *C*ISTA'CEÆ.

*ORD. CHAR. Sepals* 5, two of them being exterior. *Petals* 5, very fugitive. *Stamens* numerous. *Fruit* capsular, 3—5-valved, 5—10-celled, with parietal placentæ. *Embryo* inverted. Properties balsamic. (*Lindl.*)

*Leaves* simple, opposite or alternate (the lowest leaves always opposite), stipulate or exstipulate, deciduous or sub-evergreen; generally pubescent, pubescence simple or stellate. *Flowers* large, showy, white, red, or purple.—Shrubs low, suffrutescent, many subherbaceous; natives of Europe and Africa.

The *C*istàceæ have no medical properties; but the resinous balsamic substance called ladanum or labdanum is produced from *C.* créticus, *C.* ladaníferus, *C. l*aurifòlius, and one or two other species. Their use in gardens is for ornamenting rockwork, or for keeping in pits during the winter, and planting out in flower-borders in spring; as, from the tenderness of the finer species, they are unfit for a permanent place in a shrubbery or arboretum. Most of even the larger-growing kinds require some protection during winter: but they will all grow freely in any soil that is dry; and they are readily propagated by seeds, which, in fine seasons, they produce in abundance, or by cuttings; the plants, in both cases, flowering the second year. Though easily propagated, the *C*istàceæ do not readily bear transplanting, having very few fibres, and these rambling to a great distance from the main root. Plants for sale ought, therefore, to be always kept in pots; and, in the winter season, they should be protected by some slight covering during severe weather. The hardy ligneous species are included in two genera; which are thus contradistinguished by DeCandolle and G. Don:—

*C*I'STUS *L.* Capsule 10—5-celled.
HELIA'NTHEMUM *Tourn.* Capsule 1-celled, 3-valved.

### GENUS I.

*C*I'STUS *L.* THE CISTUS, *or* ROCK ROSE. *Lin. Syst.* Polyándria Monogýnia.

*Derivation.* From the Greek word *kistē*, a box or capsule, or the Anglo-Saxon, *cist*, a hollow

vessel; on account of the shape of its capsules. In Martyn's *Miller*, the name is said to be derived from that of the youth Cistus, whose story is to be found in Cassianus Bassus. Others derive it from *kis*, a worm or weevil.
*Identification.* Tourn., Lin., Dec., G. Don.
*Synonymes.* Holly Rose, *Gerard*; Gum Cistus; Ciste, *Fr.*; Cisten Rose, *Ger.*; Cisto *Ital.*

*Gen. Char.* *Calyx* of 5 sepals. *Sepals* disposed in a double series; 2 outer ones unequal, sometimes wanting. *Petals* 5, equal, somewhat cuneated, caducous. *Stamens* numerous, usually exserted from the glandular disk. *Style* filiform. *Stigma* capitate. *Capsule* covered by the calyx, 5- or 10-valved, with a seminiferous partition in the middle of each valve, therefore 5- or 10-celled. *Seeds* ovate, angular. *Embryo* filiform, spiral. *Leaves* simple, opposite, exstipulate, sub-evergreen, entire or toothed; the petioles embracing the stem. *Flowers* axillary, or many flowered peduncles; large, beautiful, resembling a rose, red or white.—Shrubs or subshrubs, natives of the South of Europe and North of Africa. Only two or three species or subspecies, and their varieties, are hardy in the climate of London.

♃ 1. CI'STUS PURPU'REUS *Lam.* The purple-*flowered* Cistus, *or Rock Rose.*

*Identification.* Lam. Dict., 2. p. 14.; Dec. Prod., 1. p. 264.; Don's Mill., 1. p. 298.
*Synonymes.* *C.* créticus *Hort. Kew.*; the purple Gum Cistus, the purple shrubby Cistus; Ciste pourpre, *Fr.*; purpurrothe Cisten Rose, *Ger.*
*Engravings.* Bot. Reg., t. 408.; Swt. Cist., t. 17.; and our *fig.* 77.

*Spec. Char., &c.* Leaves oblong-lanceolate, obtuse or acute, and more or less rugose; reticulately veined, with undulated margins. Petioles short, hairy, connected at the base, and sheathing the stem. Flowers terminal, from 1 to 6, on short peduncles. Bracteas sessile, leaf-like, pubescent, broad and concave at the base, where they are connected, and terminating in acute points. Pedicels short, and with the calyx hairy. Calyx of 5 sepals. Petals 5 or 6, obovate or wedge-shaped; very much imbricate, more or less crumpled. Stamens numerous, filaments smooth. Style very short; and stigma large, capitate, 5-lobed, papillose. (*Swt. Cist.*) A sub-evergreen low bush. Levant. Height 3 ft. to 4 ft. Introduced in 1659. Flowers large, bright reddish purple, with a yellow spot at the base. June and July. Capsule brown; ripe in Sept. Decaying leaves brown.

77. Cistus purpureus.

Branches numerous, erect, and clothed with a brownish pubescence. The flowers are very large and handsome, of a bright reddish purple, with a yellow spot at the base, above which is a large dark purple velvet mark, surrounded with red, and slightly branched. The petals are imbricate, and much crumpled. It flowers abundantly in June and July; grows very fast, is easily propagated by cuttings, and is very ornamental.

♃ 2. *C.* INCA'NUS *L.* The hoary Cistus, *or Rock Rose.*

*Identification.* Lin. Sp., 737.; Smith's Fl. Græc., 494.; Don's Mill., 1. p. 298.
*Synonymes.* *C.* álbidus *Hort.*; *C.* cymòsus *Dec.*; Ciste cotonneux, *Fr.*; bestaubte Cisten Rose, *Ger.*
*Engravings.* Bot. Mag., t. 43.; Swt. Cist., t. 44.; and our *fig.* 78.

*Spec. Char., &c.* Leaves spathulate, tomentose, wrinkled, somewhat 3-nerved, sessile, somewhat connate at the base, upper ones narrower. Peduncles 1—3-flowered. (*Don's Mill.*) A hoary evergreen shrub. Spain and France. Height 2 ft. to 3 ft. Introduced in 1597. Flowers reddish purple, with the petioles emarginate. June and July. Capsule brown; ripe in September. Decaying leaves brown.

78. Cistus incànus.

Quite hardy in dry soil.

### 3. *C.* CORBARIE'NSIS *Pourr.* The Corbières Cistus, *or Rock Rose.*

*Identification.* Dec. Prod., 1. p. 265.; Don's Mill., 1. p. 299.
*Synonymes.* *C. salvifolius β Dec. Prod. Fl. Fr.*, 4. p. 813.; *C.* populifolius minor, in some nurseries; *C.* hybridus *Pourr.*, not of Vahl.
*Engravings.* Swt. Cist., t. 8.; and our *fig.* 79.

79. *C.* corbariénsis.

*Spec. Char. &c.* Leaves stalked, somewhat cordate, ovate, acuminated, with fringed margins, wrinkled on both surfaces, and very glutinous. Peduncles long, 1—3-flowered. (*Don's Mill.*) A sub-evergreen shrub. South of France, on the mountains of Corbières; and also in Spain. Height 2 ft to 3 ft. Introduced in 1656. Flowers white; May and June. Capsule brown; ripe in August.

A handsome plant, and, according to Sweet, one of the hardiest species of the genus, thriving well in common garden soil, and in any situation where it is not too moist. It continues in bloom for about two months; and every day during that period the plant is covered with a profusion of handsome white flowers, the margins of which are tinged with rose colour. The rose-coloured buds are also very pretty before the flowers expand.

### 4. *C.* POPULIFOLIUS *L.* The Poplar-leaved Cistus, *or Rock Rose.*

*Identification.* Lin. Sp. 736.; Don's Mill., 1. p. 300.
*Synonymes.* *C*istus *p*opulifolius *Cav. Icon.*; Ciste à Feuilles de Peuplier, *Fr.*; Pappel-blättrige Cisten Rose, *Ger.*
*Engravings.* Swt. Cist. 23.; and our *fig.* 80.

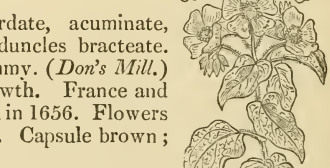
80. *C*istus *p*opulifolius.

*Spec. Char., &c.* Leaves stalked, cordate, acuminate, wrinkled, smooth. Flowers cymose. Peduncles bracteate. Bracteas oblong. Sepals acuminate, clammy. (*Don's Mill.*) A sub-evergreen shrub of vigorous growth. France and Spain. Height 5 ft. to 7 ft. Introduced in 1656. Flowers white, with distinct petals; May to July. Capsule brown; ripe in September.

Leaves dark green, cordate, clammy, with undulate margins. One of the most robust species of the genus, and also one of the hardiest. A plant 7 ft. high, in the grounds at Syon, stood through the winter of 1837–8 uninjured, without the slightest protection.

### 5. *C.* LAURIFO'LIUS *L.* The Laurel-leaved Cistus, *or Rock Rose.*

*Identification.* Lin. Sp. 736.; Clus. Hist. 1. p. 78. f. 1.; Don's Mill., 1. p. 300.
*Synonymes.* Ciste à Feuilles de Laurier, *Fr.*; Lorbeer-blättrige Cisten Rose, *Ger.*
*Engravings.* Clus. Hist., 1. p. 78. f. 1.; Swt. Cist., t. 52.; and our *fig.* 81.


81. *C*istus *l*aurifolius.

*Spec. Char., &c.* Leaves stalked, ovate-lanceolate, 3-nerved, upper surface glabrous, under surface tomentose. Footstalks dilated, and connate at the base. Capsules 5-celled. (*Don's Mill.*) A sub-evergreen bush. South of France, and Spain. Height 4 ft. to 5 ft. Introduced in 1771. Flowers large, white, with light red bracteas; July and Aug. Capsule brown; ripe in October.

A very robust species, with large green laurel-like leaves. It produces an abundance of flowers, which, with their light red bracteas, are very ornamental before they expand, resembling, at a distance, the bursting buds of roses. It requires no protection; and may be raised from seeds, which it ripens in abundance; and also by cuttings, which, however, do not strike so freely as in some of the other species.

* 6. *C.* LADANI'FERUS *L.* The Ladanum-bearing *Gum* Cistus, *or Rock Rose.*

*Identification.* Lin. Sp. 737.; Don's Mill., 1 p. 300.
*Synonymes.* Ciste ladanifère, *Fr.*; Ladanum Cisten Rose, *Ger.*; Ladano, *Ital.*

*Spec. Char., &c.* Leaves almost sessile, connate at the base, linear-lanceolate, 3-nerved, upper surface glabrous, under surface tomentose. Capsule 10-celled. Petals imbricate. (*Don's Mill.*) A sub-evergreen shrub. Spain and Portugal, on hills. Height 4 ft. to 5 ft. Introduced in 1629. Flowers large, white, 1 in. to 2 in. broad; June and July. Capsule brown; ripe in September.

82. *C.* ladaníf. maculàtus.

*Varieties.* C. *l.* 1 *albiflòrus* Dec. Prod. i. p. 266., Swt. Cist. t. 94.; Lèdon, i., *Clus. Hist.* i. p. 78. ic.; and C. *l.* 2 *maculàtus* Dec. Prod. l. c. (Swt. Cist.; and our *fig.* 82.); *C.* l. 3 plenifòlius *Ait. Hort. Kew.* iii. p. 305.; are varieties of this species.

The leaves are lanceolate, and nearly sessile, of a deep green; the flowers terminating the branches, solitary, white, and large. The variety *C.* ladaníferus maculàtus, which our *fig.* 82. represents, is a plant of very great beauty, and no collection should be without it.

* 7. *C.* (v.) CY'PRIUS *Lam.* The *Gum* Cistus, *or* Cyprus *Rock Rose.*

*Identification.* Lam. Dict., 2. p. 16.; Don's Mill., 1. p. 300.
*Synonymes.* *C.* ladaníferus *Bot. Mag.* t. 112.; Cistus stenophýllus *Link Enum.* 2. p. 74.?; *C.* salicifòlius of some.
*Engravings.* Swt. Cist., t. 39.; and our *fig.* 83.

*Spec. Char., &c.* Leaves stalked, oblong-lanceolate, upper surface glabrous, under surface clothed with hoary tomentum. Peduncles generally many-flowered. Petals spotted. Capsules 5-celled. (*Don's Mill.*) A splendid sub-evergreen shrub. Island of Cyprus. Height 5 ft. to 6 ft. Introduced in 1800. Flowers white, 2 in. to 3 in. across, imbricated, each petal having a dark rich brownish crimson spot at the base; June and July. Capsule brown; ripe in September.

83. Cistus cyprius.

One of the handsomest species of the genus, and so closely resembling *C.* ladaníferus, as, in our opinion, to be nothing more than a variety of that species. Young cuttings, Sweet observes, planted under hand-glasses in autumn, will strike root; but the best way is to raise them from layers or from seed. There was, in 1834, a plant of this species at Minard, in Argyllshire, 7 ft. 9 in. high, with a head 12 ft. in diameter, which is clothed with flowers every year.

*Other Species of Cístus* are described in Sweet's *Cistineæ*, as nearly equally hardy with the above; but the experience of the winter of 1837-8 has induced us to omit them. Those who intend to treat them as garden plants, and can afford them a little protection during winter, will find 36 species, besides varieties, described in the first edition of this work, and several of them figured. Those who intend only to have a collection of showy species, without much regard to their names, will have recourse to the mode recommended in the concluding paragraph on the Heliánthemum. (p. 61.) The following species or subspecies were found tolerably hardy in the Canterbury Nursery: *C.* heterophýllus, *C.* créticus, *C.* críspus, *C.* Cupaniànus, *C.* hirsùtus, *C.* láxus, *C.* villòsus, *C.* oblongifòlius, *C.* undulàtus, *C.* salviæfòlius, *C.* longifòlius, *C.* silosépalus.

## Genus II.

### HELIA'NTHEMUM. The Helianthemum, *or* Sun Rose. *Lin. Syst.* Polyándria Monogýnia.

*Identification.* Tourn. Inst., 248. t. 128.; Dec. Prod., 1. p. 266.; Don's Mill., 1. p. 301.
*Synonymes.* Cisti species of Lin.; Heliantheme Sonnen Gurtel, *Ger.*; Eliantemo, *Ital.*
*Derivation.* From *hēlios*, the sun, and *anthemon*, a flower; because the flowers open with the rising of the sun in the morning, and the petals fall off with the setting of the sun in the evening. The flowers of Heliánthemum, as well as of Cistus, only last for a few hours when the sun shines; and if the weather is dull, and the sun does not make its appearance, the flowers do not open, but remain unexpanded. Should this continue for several days together, they will decay in the bud.

*Gen. Char.* *Calyx* of 3—5 sepals; the two outer usually smaller than the inner ones, rarely larger. *Petals* 5, usually regularly denticulated at the top. *Stigma* capitate. *Style* sometimes almost wanting, sometimes straight, sometimes oblique, and sometimes bent at the base. *Ovary* triquetrous. *Capsule* 3-valved. *Seeds* angular, smooth.

*Leaves* simple, opposite or alternate, stipulate or exstipulate, sub-evergreen; 3-nerved or feather-nerved. *Flowers* axillary or terminal. *Pedicels* usually furnished with bracteas at the base. — Shrubs or subshrubs, low, prostrate, resembling herbaceous plants; natives of Europe; and of the easiest culture in any common soil.

1. H. vulga're *Gært.* The common Helianthemum, *or Sun Rose.*

*Identification.* Gært Fruct., 1. p. 371. t. 76.; Don's Mill., 1. p. 311.
*Synonyme.* Cistus Heliánthemum *Lin. Sp.* 1. p. 744., *Sm. Engl. Bot.* 1321., *Curt. Fl. Lond.* 5. t. 36.
*Engravings* Eng. Bot., t. 1321.; and our *fig.* 84.

*Spec. Char., &c.* Stem suffruticose, procumbent, branched, branches elongated. Leaves scarcely revolute at the margins; under surface cinereously hoary; upper surface green, pilose, somewhat ciliated. Lower leaves somewhat orbicular, middle ones ovate-elliptical, upper ones oblong. Stipules oblong-linear, ciliated, longer than the footstalks of the leaves. Racemes loose. Pedicels and calyxes pilose. (*Don's Mill.*) A procumbent sub-evergreen undershrub. Europe and Britain, in dry and hilly pastures. Height 6 in. to 1 ft. Flowers yellow; May to September.

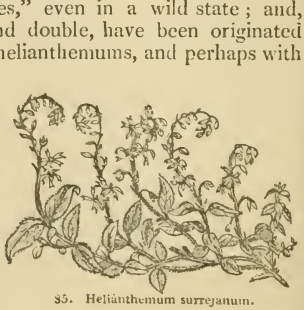
84. H. vulgàre.

*Varieties.* There is a very handsome double-flowered variety, with pale yellow flowers; and another, called Lee's new double yellow, with dark yellow flowers; both of which are in general cultivation in the nurseries. De Candolle also notices two forms of the species: one with tomentose pubescent branches, and stipules scarcely longer than the footstalks of the leaves; and another with branches glabrous at the base, but pubescent upwards, and the stipules twice or thrice the length of the petioles of the leaves.

The stamens, if touched during sunshine, spread slowly, and lie down upon the petals. (*Smith.*) "A very variable species," even in a wild state; and, in gardens, many beautiful varieties, single and double, have been originated from it by cross fecundation with Continental helianthemums, and perhaps with cistuses.

2. H. (v.) surreja'num *Mill.* The Surrey Helianthemum, *or Sun Rose.*

*Identification.* Mill. Dict., No. 15.; Swt. Cist., t. 28.; Don's Mill., 1. p. 311.
*Synonyme.* Cistus surrejànus *Lin. Sp.* 743., *Smith's Eng. Bot.*
*Engravings.* Dill. Elth., 177. t. 145. f. 174.; Swt. Cist., t. 28.; Eng. Bot., t. 2207.; and our *fig.* 85.



85. Heliánthemum surrejanum.

*Spec. Char., &c.* Stem suffruticose, procumbent. Leaves ovate oblong, rather pilose. Racemes many-flowered, terminal. Pe-

tals narrow, lanceolate, jagged. (*Don's Mill.*) A procumbent, sub-evergreen, suffruticose, undershrub. Britain, in Surrey, near Croydon. Height 6 in. to 1 ft. Flowers yellow, with the petals distinct, and the calyxes pilose; July to October.

3. H. (v.) SERPYLLIFO'LIUM *Mill.* The Wild-Thyme-leaved Helianthemum, *or Sun Rose.*

*Identification.* Mill. Dict. No. 8.; Don's Mill., 1. p. 311.
*Synonyme.* Cistus serpyllifòlius *Lin. Sp.* 743.
*Engravings.* Swt. Cist., t. 60.; and our *fig.* 86.

86. H. serpyllifolium.

*Spec. Char., &c.* Stem suffruticose. Branches ascendent, glabrous at the base, and pilose at the apex. Leaves oblong-elliptical, with revolute margins; under surface hoary-tomentose; upper surface intensely green, shining, at first rather pilose, afterwards almost smooth. Stipules and bracteas green, ciliated. Calyxes canescent, with inconspicuous down, and with the nerves sparingly pilose. (*Don's Mill.*) A trailing, sub-evergreen, suffruticose undershrub. Alps of Styria and Austria, and in Britain, in Somersetshire. Height 6 in. to 1 ft. Introduced in 1731; discovered in England in 1826. Flowers large, yellow, with the petals distinct; May to September.

4. H. (v.) GRANDIFLO'RUM *Dec.* The large-flowered Helianthemum, *or Sun Rose.*

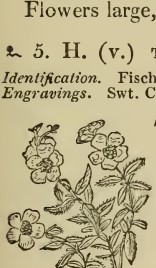
*Identification.* Dec. Fl. Fr., 4. p. 821.; Don's Mill., 1. p. 311.
*Synonyme.* Cistus grandiflòrus *Scop. Carn.* ed. 2. No. 648. t. 25.
*Engravings.* Swt. Cist., t. 69.; Scop. Carn., ed. 2. t. 25.; and our *fig.* 87.

87. H. grandiflòrum.

*Spec. Char., &c.* Stem suffruticose, ascending. Branches hairy. Upper leaves flattish, oblong, rather pilose; upper surface green, under surface sometimes pale cinereous. Stipules ciliated, rather longer than the footstalks of the leaves. Flowers large. Calyxes rather hairy. (*Don's Mill.*) A neat, little, bushy, sub-evergreen, suffruticose undershrub, bearing a close resemblance to H. vulgàre, but larger in all its parts. Pyrenees. Height 6 in. to 1 ft. Introduced in 1800. Flowers large, pale yellow; June to August.

5. H. (v.) TAU'RICUM *Fisch.* The Taurian Helianthemum, *or Sun Rose.*

*Identification.* Fisch. MSS.; Don's Mill., 1. p. 312.
*Engravings.* Swt. Cist., 105.; and our *fig.* 88.


88. H. taúricum.

*Spec. Char., &c.* Stem suffruticose, much branched, procumbent. Branches procumbent, beset with long hairs. Leaves oblong-lanceolate, with rather revolute margins, pilose on both surfaces, green above, and paler beneath. Stipules lanceolate-linear, ciliated, longer than the petiole. Flowers large. Calyx shining, rather hairy. Petals imbricate. (*Don's Mill.*) A procumbent, sub-evergreen, suffruticose undershrub. Tauria. Height 6 in. to 1 ft. Introduced in 1820. Flowers large, pale yellow; May to October. Resembles H. grandiflòrum; but differs from it in the branches spreading flat on the ground, and extending to a great distance.

6. H. (v.) APENNI'NUM *Dec.* The Apennine Helianthemum, *or Sun Rose.*

*Identification.* Dec. Fl. Fr., 4. p. 824; Don's Mill., 1. p. 313.
*Synonymes.* Cistus apennìnus *Lin. Sp.* 744.?, *Dill. Elth.* 170.; Cistus hispidus β *Lam. Dict.* 2. p. 26.; Erba bottoncina, *Ital.*
*Engravings.* Swt. Cist., t. 62.; and our *fig.* 89.

89. H. apennìnum.

*Spec. Char., &c.* Stem suffruticose, branched. Branches spreading, hoary tomentose. Leaves stalked, oblong linear, with the margins scarcely revolute; under surface tomentose, upper surface glaucescent, but at length becoming smooth. Stipules awl-shaped, longer than the footstalks of the leaves. Calyxes covered with very short hairs, striated, cinereously glaucous, bluntish. (*Don's Mill.*) A procumbent, sub-evergreen, suffruticose, undershrub. Germany and Italy, on dry hills and places exposed to the sun. Height 6 in. to 1 ft. Introduced in 1731. Flowers white, with the petals distinct, and marked with yellow at their base; May to August.

7. H. (v.) MACRA'NTHUM *Swt.* The large-flowered Helianthemum, *or Sun Rose.*

*Identification.* Don's Mill., 1. p. 313.
*Engravings.* Swt. Cist., t. 103.; and our *fig.* 90.

90. H. macránthum.

*Spec. Char., &c.* Stem suffruticose. Branches procumbent, rather tomentose. Leaves flat, ovate oblong, acutish; smooth above, and densely tomentose beneath; pale cinereous. Stipules rather pilose; about equal to, or longer than, the petioles. Calyx striated, pilose. Petals distinct. (*Don's Mill.*) A procumbent, sub-evergreen, suffruticose undershrub. Originated in gardens. Height 6 in. to 1 ft. Cultivated in 1828. Flowers larger than in any other species; cream-coloured white, with the petals distinct, spreading, and very slender at the base, where they are marked with yellow; May to August.

*Variety.*

*H. m.* 2 *múltiplex* (Swt. Cist., t. 104.; and our *fig.* 91.) is a beautiful plant, not only on account of its fine double flowers, but of its habit of growth. It ought to be in every cistacetum.

91. H. m. múltiplex.

8. H. (v.) CANE'SCENS *Swt.* The canescent-*leaved* Helianthemum, *or Sun Rose.*

*Identification.* Swt. Cist., t. 51.; Don's Mill., 1. p. 313.
*Engravings.* Swt. Cist., t. 51.; and our *fig.* 92.

*Spec. Char., &c.* Stem suffruticose, branched, diffuse. Branches ascending, rather tomentose, canescent. Leaves flat, or hardly revolute at the margins; under surface tomentosely hoary, upper surface greenish glaucous. Lower leaves ovate oblong, obtuse; upper ones lanceolate, acute. Stipules linear, ciliated, somewhat longer than the footstalks. Calyxes smoothish, but with the nerves pubescent. Petals imbricated. (*Don's Mill.*) A procumbent, sub-evergreen, suffruticose undershrub. Originated in gardens. Height 6 in. to 1 foot. Cultivated in 1826. Flowers reddish crimson; May to August.

A splendid plant, with reddish crimson flowers; the petals imbricated, and having a small orange spot at the base of each. Sweet considers it as having the darkest-coloured, if not the handsomest, flowers of the genus. The flowers are also, he says, very large for the size of the plant. It is nearly related to H. rhodánthum, but is readily distinguished from it by its canescent leaves, and stronger habit of growth.

92. H. canéscens.

9. H. (v.) HYSSOPIFO'LIUM *Tenore.* The Hyssop-leaved Helianthemum, *or Sun Rose.*

*Identification* Tenor. Syn. Fl. Neap., p. 48.; Don's Mill., 1. p. 314.

*Spec. Char., &c.* Stem suffruticose, ascending. Branches hairy-tomentose. Lower leaves oval; upper ones oblong-lanceolate, green on both surfaces, flat, hairy. Calyxes hairy. Petals imbricate. (*Don's Mill.*) A sub-evergreen suffruticose undershrub, with the branches ascending. Originated in gardens. Height 1 ft. to 1½ ft. Cultivated in 1827. Flowers variable from saffron to red; May to August. Capsule brown; ripe in September. Varying considerably by culture.

*Varieties.*

- *H.* h. 1 *crocàtum* (Swt. Cist., t. 92.) has flowers saffron-coloured, with more or less of a ferrugineous tint, and may represent the species.
- *H.* h. 2 *cùpreum* (Swt. Cist., t. 58.) has flowers of a reddish copper-colour.
- *H.* h. 3 *múltiplex* (Swt. Cist., t. 72.; and our *fig.* 93.) has double flowers, of a reddish copper-colour.

93. H. (v.) *hyssopifolium.*

All the three forms of this variety are splendid plants; they are hardy, of luxuriant growth, flowering freely, and of the easiest culture, either in pots or on banks of light sandy soil, covered with flints or stones. The flowers of the copper-coloured variety, and also the leaves, are larger than those of the two other kinds. The double-flowered variety appears to be of a more upright habit of growth, and not quite so robust as the others.

10. H. SCABRO'SUM *Pers.* The rough Helianthemum, *or Sun Rose.*

*Identification.* Pers. Ench., 2. p. 76.; Brot. Fl. Lus., 2. p. 265.; Don's Mill., i. p. 302.
*Synonyme.* *C*istus scabrosus *Ait. Hort. Kew.* 2. p. 236.
*Engravings.* Swt. Cist., t. 81.; and our *fig.* 94.

*Spec. Char., &c.* Erectish. Branches pilosely tomentose, scabrous, canescent. Leaves sessile, tapering to the base, oblong-ovate, acutish, roughish, 3-nerved, with waved revolute margins; upper surface green, under surface clothed with grey tomentum. Peduncles terminal, 1—2-flowered, shorter than the leaves. Calyx 3-sepaled, hairy. Petals distinct. (*Don's Mill.*) A sub-evergreen erect undershrub. Portugal. Height 2 ft. to 3 ft. Introduced in 1775. Flowers rich yellow; June to August. Capsule brown; ripe in Sept.

94. H. scabròsum.

Differs from most other species of Heliánthemum, in growing erect. It forms a very handsome little bush, but it requires a sheltered situation, and a dry soil.

*Many other Kinds of Helianthemums* described in Sweet's *Cistineæ* are, perhaps, as hardy as those we have selected; but it would be of little use giving them here, the greater part having been lost during the winter of 1837–8. In the first edition of this *Arboretum* 99 species are described, besides varieties. Supposing a cultivator about to form a collection of *C*istàceæ, we should attach much less importance to his being able to procure all the sorts of *C*istus and Heliánthemum described in Sweet's *Cistineæ*, than to his obtaining all the sorts easily procurable, whatever names they might pass under, and cross-fecundating them so as to produce new forms. There can be no doubt whatever that the sorts of both the genera *C*istus and Heliánthemum might, by cross-fecundation, be increased *ad infinitum;* and, considering their very great beauty as border and rockwork shrubs, we think they merit the attention of cultivators at least as much as many florist's flowers.

## Section III.

*Ovarium solitary; Placenta central. (The Column in the Fruit to which the Seeds are attached central, and not adhering to the Side as in Section* II.)

## Order IX. *MALVA'CEÆ.*

*Ord. Char.* *Calyx* with a valvate æstivation, mostly with an involucre. *Stamens* with the filaments monadelphous, and the anthers 1-celled. *Pubescence* starry. (*Lindl.*)—Trees or shrubs, deciduous, natives of warm climates.

*Leaves* simple, alternate, stipulate, deciduous; more or less divided. *Hairs* stellate, axillary. *Flowers* on peduncles, large, showy.—The only genus containing hardy species is *Hi*bíscus. The genus Lavátera contains some species which have an arborescent appearance, but which are in fact only suffrutescent biennials or triennials.

### Genus I.

*HIBI'SCUS L.* The Hibiscus. *Lin. Syst.* Monadélphia Polyándria.

*Identification.* Lin. Gen., 846.; Dec. Prod, 1. p. 446.; Don's Mill., 1. p. 476.
*Synonymes.* Ketmie, *Fr.*; Eibisch, *Ger.*; Ibisco, *Ital.*
*Derivation.* The word *hibiskos* is one of the names given by the Greeks to the mallow. The *Hi*bíscus of Pliny appears to be an umbelliferous plant; while that of Virgil is a plant with pliant branches, which was made into baskets. The word *Hi*bíscus is supposed by some to be derived from *ibis*, a stork, which is said to feed on some of the species. Ketmie (*Fr.*) is derived from *Kétmia*, the name given to the genus by Tournefort. Eibisch is the German aboriginal word for the mallow.

*Gen. Char.* *Calyx* encompassed by a many-leaved, rarely by a few-leaved, involucel, or one with its leaves connate. *Petals* not auricled. *Stigmas* 5. *Carpels* joined into a 5-celled 5-valved capsule, with a dissepiment in the middle of each valve on the inside. *Cells* many-seeded, rarely 1-seeded.

*Leaves* simple, alternate, stipulate, deciduous; variously lobed and toothed, generally ovate-wedge-shaped. *Flowers* pedunculate, large, showy. — The only hardy ligneous species is *H.* syrìacus.

1. *H.* syri'acus *L.* The Syrian Hibiscus, *or Althæa Frutex.*

*Identification.* Lin. Sp., 978.; Dec, Prod., 1. p. 448.; Don's Mill., 1. 478.
*Synonymes.* Ketmie des Jardins, *Fr.*; Syrischer Eibisch, *Ger.*
*Derivation.* It is called Althæa from the resemblance of its flowers to those of the *Al*thæ'a rósca.
*Engravings.* Cav. Diss., 3. t. 69. f. 1.; Bot. Mag., t. 83.; and our *fig.* 95.

*Spec. Char., &c.* Stem unarmed, arboreous. Leaves ovate, wedge-shaped, 3-lobed, toothed. Pedicels hardly longer than the leaves. Involucel 6—7-leaved. (*Don's Mill.*) A deciduous shrub. Syria and Carniola. Height 6 ft. Introduced in 1596. Flowers large, single or double, white, red, purple, or variegated; August and September. Capsule greenish brown; ripe in October. Decaying leaves yellowish green. Naked wood white

95. *H*ibiscus syrìacus.

One of our most ornamental hardy shrubs, of which there are the following varieties:—

- H. *s.* 2 *fòliis variegàtis.*—Leaves variegated.
- H. *s.* 3 *flòre variegàto.*—Flowers variegated.
- H. *s.* 4 *flòre purpùreo.*—Flowers purple.
- H. *s.* 5 *flòre purpùreo plèno.*—Flowers double, purple.
- H. *s.* 6 *flòre rùbro.*—Flowers red.
- H. *s.* 7 *flòre álbo.*—Flowers white.
- H. *s.* 8 *flòre álbo plèno.*—Flowers double, white.

Branches numerous, upright, white-barked; their general character being rather fastigiate than spreading. Leaves variously lobed; flowers axillary, large, and bell-shaped. Conspicuously ornamental; and the more valuable, because it produces its flowers at a time of the year when few shrubs are in bloom. It forms beautiful garden hedges; more especially when the different sorts are planted in a harmonious order of succession, according to their colours; and when the plants are not clipped, but carefully pruned with the knife. In the colder parts of Britain, and in the north of Germany, few ornamental shrubs better deserve being planted against a wall. It will grow in almost any soil not too wet; but, like all the *M*alvàceæ, seems to prefer one which is sandy, deep, and rich, rather than poor. An open airy situation, where it will ripen its wood, is essential. The single-flowered varieties are propagated by seed, which come up true to their respective colours; and the double-flowered varieties are propagated by layers, by grafting on the common sorts, and sometimes by cuttings of the ripened wood, planted in sand in autumn, and covered with a hand-glass during the winter.

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## Order X. *TILIA'CEÆ.*

*Ord. Char.* *Sepals* 4 or 5, with a valvate æstivation, mostly without an involucre. *Petals* 4 or 5, or rarely not any. *Stamens* hypogynous, generally numerous, with filaments separate, and anthers 2-celled. Mostly *glands* between the petals and ovarium. *Ovary* and *fruit* single, of 4—10 carpels grown together; cells in the fruit, at least in some, not so many as the carpels. (*Lindley.*) — Trees and shrubs chiefly from warm climates.

*Leaves* simple, alternate, stipulate, deciduous; cordate. *Flowers* panicled, yellowish, fragrant, with an oblong bractea united to the common stalk. *Capsule* downy. — The only genus which is perfectly hardy is *T*ília; native of Europe and North America.

### Genus I.

*TI'LIA L.* The Lime Tree. *Lin. Syst.* Polyándria Monogynia.

*Identification.* Lin. Gen., 660.; Dec. Prod., 1. p. 512.; Don's Mill., 1. p. 552.
*Synonymes.* Line Tree, *Gerard*; Lind, *Anglo-Sax.*; Tilleul, *Fr.*; Bast-holtz, *Ger.*; Linde, *Ger.* and *Dutch*; Tiglia, *Ital.*; Tilo, *Span.*; Lípa, *Russ.*
*Derivation.* In London and Wise's *Retired Gardener* the name of *T*ilia is derived from the Greek word *ptilon*, a feather, from the feathery appearance of the bracteas; but others derive it from the Greek word *tilai*, light bodies floating in the air like wool or feathers. Tilleul is from *tailler*, either because the tree bears pruning well, or the wood may be easily carved. Bast-holtz is literally bark wood, in allusion to the use of the bark, in forming mats.

*Gen. Char.* *Calyx* 5-parted. *Petals* 5. *Stamens* numerous, free, or somewhat polyadelphous. *Ovary* globose, villous, 1-styled, 5-celled; cells 2-ovuled. *Nut* coriaceous, 1-celled, 1—2-seeded, from abortion. (*Don's Mill.*, i. p. 540.) — Timber trees, with a tough fibrous bark, large deciduous leaves, mellifluous flowers, and a remarkable bractea attached to the peduncle of each of the cymes of flowers. Natives of Europe and North America.

*Leaves* simple, alternate, stipulate, deciduous; cordate. — The species are three, according to some; and more than twice that number, according to others. Our opinion is, that they may be all included under two, *T.* europæ'a and *T.* americàna.

♃ 1. *T.* EUROPÆ'A *L.* The European, *or common*, Lime Tree.

*Identification.* Lin. Sp. 733.; Don's Mill., 1. p. 552.; Smith's Eng. Fl., 3. p. 16.
*Synonymes.* *T.* intermèdia *Dec. Prod.* 1. 513.; or *T.* vulgàris *Hayne Dend.*; *T.* europæ'a boreàlis *Wahl.*

96. Tilia europæ'a.

*Spec. Char., &c.* Petals without scales. Leaves cordate, acuminated, serrated, smooth, except a tuft of hair at the origin of the veins beneath, twice the length of the petioles. Cymes many-flowered. Fruit coriaceous, downy. (*Don's Mill.*) A large deciduous tree. Europe, and Britain in some aboriginal woods. Height 60 ft. to 90 ft. Flowers yellowish white; August and September. Fruit yellow; ripe in October. Decaying leaves yellow, or yellowish brown. Naked young wood reddish, or yellowish brown.

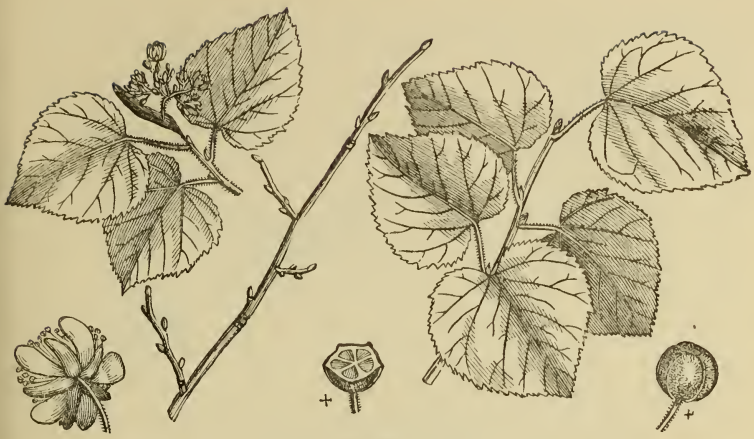
*Varieties.* The extensive distribution and long cultivation of this tree in Europe have given rise to the following varieties, or races, described by most botanists as species: —

A. *Varieties differing in respect to Foliage.*

ϒ T. *e.* 1 *parvifòlia.* *T.* microphýlla *Vent.*, *Willd.*, *Dec.*, and *G. Don*; *T.* e. var. γ *L.*; *T.* ulmifòlia *Scop.*; *T.* sylvéstris *Desf.*; *T.* parvifòlia *Ehrh.*, *Hayne Dend.*; *T.* cordàta *Mill.*; Tilleul à petites Feuilles *Fr.*; kleinblättrige Linde, or Winterlinde, *Ger.* (Willd. Holzart, t. 106.; Engl. Bot., t. 1705.; and our *fig.* 97.) — Leaves cordate, roundish, acuminated, sharply serrated; smooth above, glaucous and bearded beneath on the axils of the veins, as well as in hairy blotches. Fruit rather globose, hardly ribbed, very thin and brittle. Native of Europe, in sub-mountainous woods; in England, frequent in Essex and Sussex. This variety is distinguishable, at first sight, from all the others, by the smallness of its leaves, which are only about 2 in. broad, and sometimes scarcely longer than their slender footstalks. The flowers are also much smaller than in any of the other varieties; they expand later; and they are very fragrant, having a scent like those of the honeysuckle There was, in 1834, a subvariety of this in the garden of the Hort Soc., under the name of *T.* parvifòlia glaúca.

97. *T.* microphýlla.

ϒ T. *e.* 2 *grandifòlia.* *T.* platyphýlla *Scop.*; *T.* cordifòlia *Bess.*; *T* europæ'a *Desf.*; *T.* grandifòlia *Ehrh.* and *Smith*; broad-leaved downy Lime Tree; Tilleul à grandes Feuilles, or Tilleul de Hol-



98. Tilia europæ'a platyphýlla.

lande, *Fr.* (Vent. Diss., p. 6. t. 1. f. 2.; the plate in Arb. Brit., 1st edit., vol. v.; and our *fig.* 98.) — Leaves cordate, roundish, acuminated, sharply serrated, downy beneath; origin of their veins woolly. Branches hairy. Cymes 3-flowered. Fruit woody, downy, turbinate, with 5 prominent angles. This tree is readily distinguished from *T.* e. parvifòlia by its much larger and rougher leaves, and, also, by its rougher bark and hispid branches.

ϒ T. *e.* 3 *intermèdia.* *T.* intermèdia *Hayne*; *T.* platyphýlla mìnor *Hort.* (The plate of this variety in Arb. Brit., 1st edit., vol. v.; and our *fig.* 99.) — Leaves intermediate between *T.* e. grandifòlia

99. Tilia europæ'a intermèdia.

and *T.* e. parvifòlia. This variety is the most common in Britain; *T.* e. grandifòlia in the South of Europe; and *T.* e. parvifòlia in the North of Europe, and especially in Sweden.

ϒ T. *e.* 4 *laciniàta.* *T.* platyphýlla laciniàta *Hort.*; *T.* asplenifòlia nòva *Hort.* (The plate in Arb. Brit., 1st edition, vol. v.; and our *fig.* 100.) — Leaves deeply and irregularly cut and twisted, scarcely two on the tree being alike. Apparently a subvariety of *T.* e. parvifòlia. Height 20 or 30 feet.

100. *Tilia europæ'a laciniàta.*

B. *Varieties differing in the Colour of the young Shoots.*

Each of the varieties included in Division A may have subvarieties differing in the colour of the young wood; but we shall only notice those in general cultivation.

ϒ T. *e.* 5 *rùbra.* *T.* corinthìaca *Bosc*; *T.* corállina *Hort. Kew.*; *T.* europæ'a β rùbra *Sibthorp*; *T.* europæ'a γ *Smith's Flor. Brit.* 571.; *T.* grandifòlia β *Smith's Eng. Flora,* 3. 19. — Young shoots of a bright red; apparently a variety of *T.* e. intermèdia.

ϒ T. *e.* 6 *parvifòlia aúrea.* (The plate in Arb. Brit., 1st. edit. vol. v.; and our *fig.* 101.) — Young shoots of a rich yellow. Height 15 ft. to 20 ft.

101. Tilia parvifòlia aurea.

ϒ T. *e.* 7 *grandifòlia aúrea.* — Twigs of a fine yellow. Leaves large. Tree 60 ft. to 80 ft.

*Other Varieties.* There is a variety with variegated leaves, but it is such a

ragged ill-looking plant that we deem it altogether unworthy of culture. Host, in his *Flora Austriaca*, has the following names, which he considers as species: *T.* vitifòlia; corylifòlia; grandifòlia *Sm.*; corállina, syn. europæ'a *Hook. Lond.*; mutábilis; làte bracteàta; præ'cox; pyramidàlis; intermèdia; tenuifòlia; oblìqua; europæ'a *Sm.*; parvifòlia *Sm*; argéntea, syn. álba *Waldst. et Kit. Icon.* t. 3. (*Fl. Aus.*, vol. ii. p. 59—63.)

The wood of the lime tree is of a pale yellow or white, close-grained, soft, light, and smooth, and not attacked by insects. It weighs, per cubic foot, when green, 55 lb.; half-dry, 45 lb.; and dry, 37 lb.; and it loses a third part of its weight, and a fourth part of its bulk, by drying. (*Baudrill.*) It is used by pianoforte-makers for sounding-boards, and by cabinet-makers for a variety of purposes. It is carved into toys, and turned into domestic utensils of various kinds, and into small boxes for the apothecaries. The most elegant use to which it is applied is for ornamental carving, for which it is superior to every other wood. This wood is said to make excellent charcoal for gunpowder; even better than alder, and nearly as good as hazel. Baskets and cradles were formerly made from the twigs; and shoemakers and glovers are said to prefer planks of lime tree for cutting the finer kinds of leather upon. The leaves of the lime tree, in common with those of the elm and the poplar, were used, both in a dried and in a green state, for feeding cattle, by the Romans; and they are still collected for the same purpose in Sweden, Norway, Carniola, and Switzerland. One of the most important uses of the lime tree, in the North of Europe, is that of supplying material for ropes and bast mats; the latter of which enter extensively into European commerce. The Russian peasants weave the bark of the young shoots for the upper parts of their shoes, the outer bark serves for the soles; and they also make of it, tied together with strips of the inner bark, baskets and boxes for domestic purposes. The outer bark of old trees supplies them, like that of the birch, with tiles for covering their cottages. Ropes are still made from the bark of the tree in Cornwall, and in some parts of Devonshire. The fishermen of Sweden make nets for catching fish of the fibres of the inner bark, separated, by maceration, so as to form a kind of flax; and the shepherds of Carniola weave a coarse cloth of it, which serves them for their ordinary clothing. The sap of the lime tree, drawn off in spring, and evaporated, affords a considerable quantity of sugar. The honey produced by the flowers is considered superior to all other kinds for its delicacy. London and Wise recommended the lime tree, as preferable to the elm, for sheltering gardens or orchards; because the roots do not, like those of the elm, spread out and impoverish all around them. A deep and rather light soil is recommended; but the largest trees are generally found in a good loamy soil. In dry situations, the lime never attains a large size, and it loses its leaves earlier than any other tree. Being a tree of the plains, rather than of the mountains, it does not appear suitable for exposed surfaces: but it requires a pure air rather than otherwise; for, though, it is found in towns on the Continent, and sparingly so in Britain, the smoke of mineral coal seems more injurious to it than it is to the plátanus, the elm or some other trees. It is seldom propagated otherwise than by layers, which are made in the nurseries in autumn and winter; and which become rooted, so as to admit of being taken off, in a year. The tree in Britain appears seldom to ripen its seeds.

♀ 2. *T.* (EUR.) A'LBA *Waldst. & Kit.* The white-*leaved* European Lime Tree.

*Identification.* Waldst. and Kit. Pl. Hung.; Don's Mill. 1. p. 553.
*Synonymes.* *T.* americàna *Du Roi*; *T.* argéntea *Desf.*, *Dec. Cat. Hort. Monsp.*, and *Dec. Prod.* 1. p. 513.; *T.* rotundifòlia *Vent.* and *N. Du Ham.*; *T.* tomentòsa *Mœnch.*
*Engravings.* Waldst. and Kit. Pl. Hung., 1. t. 3.; Wats. Dend., t. 71.; the plate in Arb. Brit., 1st edit., vol. v.; and our *fig.* 102.

*Spec. Char., &c.* Petals each with a scale at the base inside. Leaves cordate, somewhat acuminated, and rather unequal at the base, serrated, clothed with white down beneath, but smooth above, 4 times longer than the petioles. Fruit ovate, with 5 obscure ribs. (*Don's Mill.*) Fruit evidently ribbed.

102. Tilia álba.

(*Steven.*) Host says that he has always found the calyx 6-sepaled, and the corolla 12-petaled. A large tree. Hungary. Height 30 ft. to 50 ft. Introduced in 1767. Flowers yellowish white, very fragrant; June to August. Fruit yellow; ripe in October.

Our own opinion is, that this is nothing more than a very distinct race of the common lime; notwithstanding the circumstance of its having scales to its petals, which no one of the other varieties of *T.* europæ'a is said to possess. Even allowing this structure to be permanent in the Hungarian lime, the tree bears such a general resemblance to *T.* europæ'a in all its main features, that it seems to us impossible to doubt the identity of their origin. We are strengthened in this opinion by the circumstance of its being found only in isolated stations in the Hungarian forests. We have, however, placed this lime by itself, rather than among the other varieties; because, from the whiteness of its foliage, it is far more obviously distinct than *T.* e. grandifòlia or *T.* e. parvifòlia. The tree is at once distinguishable from all the other species and varieties by this white appearance, even at a considerable distance, and by the strikingly snowy hue of its leaves when they are ruffled by the wind. Its wood and shoots resemble those of the common lime; but it does not attain the same height as that tree.

### ♃ 3. *T.* AMERICA'NA *L.* The American Lime Tree.

*Identification.* Lin. Sp., 733.; Hort. Kew.; Willd. Spec.; Tor. and Gray.
*Synonymes.* *T.* glàbra *Vent.*; *T.* caroliniàna *Wangenh.*; *T.* canadénsis *Michaux*; *T.* glàbra *Dec.*, *Hayne's Dendr.*, and *Don's Mill.*; the smooth-leaved, or black, Lime Tree, and Bass Wood, *Amer.*
*Engravings.* Vent. Diss., t. 2.; Wats. Dendr. Brit., t. 134.; the plate in Arb. Brit., 1st edit., vol. v.; and our *fig.* 105.

*Spec. Char., &c.* Petals each with a scale at the base, inside. Leaves profoundly cordate, abruptly acuminate, sharply serrated, somewhat coriaceous, smooth. Petals truncate and crenate at the apex, equal in length to the style. Fruit ovate, somewhat ribbed. (*Don's Mill.*) A large tree. Canada, Virginia, and Georgia. Height 70 ft. to 80 ft. in America; in England 60 ft. to 70 ft. Introduced in 1752. Flowers yellowish white; July and August. Fruit the size of a large pea, yellow; ripe in October. Decaying leaves yellowish brown. Naked young wood dark brown.

*Varieties.* Those which we shall give as such are described in the *Flora* of Torrey and Gray as species; but with the following remark, which we think fully justifies us in not considering them more specifically distinct than the different alleged species of the European lime. "There is great uncertainty respecting the synonymes. Indeed, nearly all the characters which have been employed for distinguishing them are either inconstant, or are common to them all. A careful examination of the flowers in the living plants may afford more certain marks of discrimination."

♆ T. *a.* 2 *heterophýlla.* *T.* heterophýlla *Vent.*, *Pursh*, *Dec. Prod.*, *Tor. & Gray.*—A tree of 30 ft. to 50 ft. high, found on the banks of the Ohio and Mississippi, and introduced in 1811. Leaves glabrous and deep green above, very white and velvety tomentose beneath; the veins dark-coloured, and nearly glabrous, with coarse mucronate serratures. Petals obtuse, crenulate. Staminodia spatulate, entire. Style hairy at the base. (*Tor. and Gray*, i. p. 240.) Leaves 4 in. to 8 in. in diameter, very oblique, and more or less cordate, with a short abrupt acumination; somewhat shining above: the veins on the under surface very conspicuous, in contrast with the white pubescence. Cyme few-flowered, loose. Style longer than the petals. (*Ibid.*)

♆ T. *a.* 3 *álba.* *T.* álba *Michx.*, *Tor. & Gray*; *T.* laxiflòra *Pursh.* (The plate of this tree in Arb. Brit., 1st ed., vol. v.; and our *fig.* 103.)—A

103. Tilia americàna álba.

large tree in Pennsylvania and Maryland. Height 30 ft. to 50 ft. Introduced in 1820. Flowers yellowish white, very pale; June. Leaves 3 in. to 4 in. in diameter, with a short abrupt acumination, cordate, somewhat unequal at the base; the under surface rather thinly pubescent, very pale, but scarcely white. Staminodia (scales) two thirds the length of the petals. Filaments slightly pentadelphous. (*Tor. and Gray*, i. p. 240.) We have only seen this tree in the H. S., where, 10 years planted, it was about 10 ft. high in 1837.

♆ T. *a.* 4 *pubéscens.* *T.* pubéscens *Ait.*, *Vent.*, *Tor. & Gray.* (The plate of this tree in Arb. Brit., 1st ed., vol. v.; and our *fig.* 104.)—A large tree found in Carolina and Florida, along the sea coast. Height 50 ft. to 70 ft. Introduced in 1726. Flowers pale yellow; June. Leaves 3 in. to 4 in. in diameter; the under surface, when young, rather paler than the upper, but at length nearly the same colour; serratures broad and short. (*Tor. and Gray*, i. p. 240.)

104 Tilia americàna pubéscens.

On a general view of the trees, the most obvious external differential characteristics of the European and American limes appear to us to be, that the former have regularly cordate, and the latter obliquely cordate, leaves. The other American limes we consider to be nothing more than varieties of this species. Layers. These trees only thrive in warm sheltered situations. The American lime is readily distinguished from the European limes by the largeness of its leaves, which are 3 in. to 4 in. wide, heart-shaped, acutely

105. Tilia americàna.

pointed, coarsely and mucronately serrated, deep green and glabrous on their upper sides, and pale green beneath. Some of them have a tendency to be slightly pubescent; but they are generally smooth and shining. In winter, this species is readily recognised by the robust appearance of the trunk and branches, and by the dark-brown colour of the bark on the young shoots. This circumstance alone is a very marked distinction; and has, no doubt, procured for the species the name of the black lime tree.

*Other American Limes.* — T. *p. leptophýlla* Vent. is mentioned by Torrey and Gray as having the leaves very thin and papyraceous. There were in 1834 other varieties in the H. S. G., but the plants had not attained sufficient size to enable us to state any thing with certainty respecting them. All the species and varieties of American limes are delicate in this country; they are readily injured by spring frosts, but, where they thrive, are readily distinguished from other limes by their very large cordate leaves, and rough bark, even on the young wood. Some of the oldest and largest American limes in England are in Gatton Park, Surrey, near the lake; and at Croome, near Upton upon Severn. There is an old tree, also, at Purser's Cross, Fulham; and a remarkably handsome young tree at White Knights.

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## Order XI. TERNSTRÖMIA'CEÆ.

*Ord. Char.* *Calyx* with an imbricate æstivation. *Stamens* with filaments monadelphous or polyadelphous, and anthers 2-celled to 4-celled. — Trees and shrubs of warm climates.

*Leaves* simple, alternate, exstipulate, deciduous or evergreen; mostly coriaceous, now and then with pellucid dots. *Flowers* axillary, large, showy. — The hardy genera in British gardens are Malachodéndron, Stuártia, and Gordònia; which are thus contradistinguished: —

Malachode'ndron *Cav.* Calyx unibracteate. Styles free. Carpels capsular, 5, connected.

Stua'rtia Cav. Sepals connected, bibracteate. Style 1. Capsule 5-celled, 5-valved. Seeds wingless.

Gordo'nia Ellis. Sepals distinct. Style 1. Capsule 5-celled, 5-valved. Seeds winged.

### Genus I.

### MALACHODE'NDRON *Cav.* The Malachodendron. *Lin. Syst.* Monadélphia Polyándria.

*Identification.* Cav. Diss., 5. p. 502.; Dec. Prod., 1. p. 528.; Don's Mill., 1. p. 572.
*Synonymes.* Stuártia L'Hérit.; Stewártia L.
*Derivation.* From *malakos*, soft, and *dendron*, a tree; in allusion, perhaps, to the quality of the timber; or, possibly, from the flowers resembling those of the mallow, the Greek name for which is *malachē*.

*Gen. Char.* *Calyx* 5-cleft, furnished with two bracteas at the base. *Petals* 5, with a crenulate limb. *Ovary* 5-furrowed. *Styles* 5, unconnected. *Stigmas* capitate. *Carpels* 5, capsular, connected, 1-seeded. *Seeds* unknown. (*Don's Mill.*) — A deciduous shrub or low tree; native of North America.

*Leaves* simple, alternate, exstipulate, deciduous. *Flowers* axillary, solitary, large, showy.

♃ ❀ 1. Malachode'ndron ova'tum *Cav.* The ovate-*leaved* Malachodendron.

*Identification.* Cav., l. c.; Lindl. Bot. Reg.; Don's Mill., 1. p. 272.
*Synonymes.* Stuártia pentagýnia *L'Hérit.*; Stewártia Malachodéndron *Mill.*; Stewartia à cinq Styles, *Fr.*
*Engravings.* Smith's Exot. Bot., t. 101.; N. Du Ham. vol. vi. t. 44.; Bot. Reg., t. 1104.; and our *fig.* 106. of a plant in flower, and *fig.* 107. of a shoot from a stool.

*Spec. Char., &c.* Leaves ovate, acuminated. Flowers axillary, solitary, almost sessile. Petals waved, cut, of a pale cream-colour. (*Don's Mill.*) A deciduous tree; in England, a large shrub. North Carolina to Georgia. Height

106. M. ovàtum.

7 ft. to 12 ft. Introduced in 1795. Flowers arge, white ; July and August. Capsules brownish; ripe in September. Decaying leaves purplish brown. Naked young wood dark brown.

The soil in which it is generally grown is a mixture of loam and peat, in which the latter prevails ; but, in the Mile End Nursery, it shoots vigorously, and flowers freely, in deep sandy loam. The situation should be sheltered; and shaded rather than otherwise. The usual mode of propagation is by layers; and the stools are sometimes protected, during winter, by mats.

107. M. ovàtum.

## Genus II.

STUA'RT*IA* Cav. The Stuartia. *Lin. Syst.* Monadélphia Pentándria.

*Identification.* Cav. Diss., 5. p. 393.; Dec. Prod., 1. p. 528.; Don's Mill., 1. p. 573.
*Derivation.* Named in honour of *John Stuart*, Marquess of Bute, the patron of Sir John Hill, and a distinguished promoter of botanical science.

*Gen. Char. Calyx* permanent, 5-cleft, rarely 5-parted, furnished with two bracteas at the base. *Petals* 5. *Ovary* roundish. *Style* 1, filiform, crowned by a capitate 5-lobed stigma. *Capsule* woody, 5-celled, 5-valved; cells 1—2-seeded. *Seeds* wingless, ovate, even. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous; ovate, acute. *Flowers* axillary, solitary, large. — A deciduous shrub, or low tree, native of North America.

### 1. Stua'rt*ia* virgi'nica *Cav.* The Virginian Stuartia.

*Identification.* Dec. Prod, 1. p. 528.; Don's Mill., 1 p. 573.
*Synonymes.* Stewárt*ia* Malachodéndron *Lin. Sp.*, 982.; Stuárt*ia* marilándica *Bot. Rep.*; Stewartia à un Style, *Fr.*; eingriffliche (one-styled) Stuartie, *Ger.*
*Engravings.* Lam. Ill., t. 593.; Bot. Rep., t. 397.; and our *fig.* 108. of a plant in flower, and *fig.* 109. of a shoot from a stool.

108. Stuárt*ia* virginica.

109. Stuárt*ia* virginica.

*Spec. Char., &c.* Flowers large, white, with purple filaments and blue anthers, usually in pairs. Leaves ovate, acute. Petals entire. (*Don's Mill.*) A deciduous shrub Virginia to Carolina, in swamps. Height 6 ft. to 8 ft.

Introduced in 1742. Flowers large, white; July to September. Capsules brownish; ripe in October. Decaying leaves reddish brown. Naked young wood dark brown.

The general appearance of the plant is the same as that of the preceding genus; but it forms a smaller bush, and the foliage has a redder hue. The flowers are of the same size, white, with crisped petals, purple filaments, and blue anthers. This plant is not so extensively cultivated as the other, from its being more tender, and of somewhat slower growth; but its beauty, and the circumstance of its flowering from July to September, when but few trees or shrubs are in blossom, render it desirable for every collection. It thrives best in a peat soil, kept moist; but it will also grow in deep moist sand. Layers.

## Genus III.

GORDO'NIA Ellis. The Gordonia. *Lin. Syst.* Monadélphia Polyándria.

*Identification.* Ellis, in Phil. Trans., 1770.; Dec. Prod. 1. p. 528.; Don's Mill., 1. p. 573.
*Derivation.* Named in honour of *James Gordon*, a celebrated nurseryman at Mile End, near London, who corresponded with Linnæus.

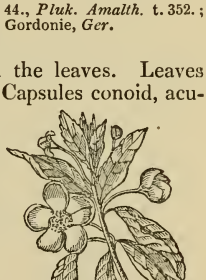
*Gen. Char.* *Calyx* of 5 rounded coriaceous sepals. *Petals* 5, somewhat adnate to the urceolus of the stamens. *Style* crowned by a peltate 5-lobed stigma. *Capsules* 5-celled, 5-valved; cells 2—4-seeded. *Seeds* ending in a leafy wing fixed to the central column, filiform. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, sub-evergreen or deciduous; serrated or nearly entire. *Flowers* axillary (or terminal), solitary, large. — Trees or shrubs, sub-evergreen or deciduous; natives of North America.

### 1. Gordo'nia Lasia'nthus *L.* The woolly-flowered Gordonia, *or Loblolly Bay.*

*Identification.* Lin. Mant., 570.; Dec. Prod., 1. p. 528.; Don's Mill., 1. p. 573.; Tor. and Gray, 1. p. 223.
*Synonymes.* Hypéricum Lasiánthus *Lin. Sp.* 1101., *Catesb. Carol.* 1. t. 44., *Pluk. Amalth.* t. 352.; Gordonia à Feuilles glabres, and Alcée de la Floride, *Fr.*; langstielige Gordonie, *Ger.*
*Engravings.* Cav. Diss., 6. t. 171.; Bot. Mag., t. 668.; and our *fig.* 110.

*Spec. Char., &c.* Pedicels axillary, usually shorter than the leaves. Leaves oblong, coriaceous, smooth, serrated. Calyx silky. Capsules conoid, acuminated. (*Don's Mill.*) A sub-evergreen tree; in England a shrub, deciduous in dry soils, but retaining its leaves in warm moist situations. Virginia to Florida, in swamps. Height 50 ft. to 80 ft. in America; 8 ft. to 10 ft. in England. Introduced in 1739. Flowers white, 4 in. across, scented; July and August. Capsule oval, brownish; ripe in September.



110. Gordònia Lasiànthus.

Trunk straight. This most beautifully flowering plant well deserves to have a suitable soil prepared for it, and to be treated with more care after it is planted than it appears to have hitherto received in England. The soil ought to be peat, or leaf-mould and sand; and it should be so circumstanced as always to be kept moist. Layers or American seeds.

### 2. G. pube'scens *L'Her.* The pubescent Gordonia.

*Identification.* L'Her. Stirp., p. 156.; Dec. Prod., 1. p. 528.; Don's Mill., 1. p. 573.; Tor. and Gray, 1. p. 223.
*Synonymes.* Lacathèa flórida *Sal. Par. Lond.* t. 56.; Franklínia americàna *Marsh.*; the Franklinia, *Amer.*; behaarte Gordonie, *Ger.*
*Engravings.* Sal. Flor. Lond., t. 56.; Michx., t. 59.; and our *fig.* 111.

*Spec. Char., &c.* Flowers almost sessile. Leaves obovate-lanceolate, pubescent beneath, somewhat serrated, membranaceous. Petals and sepals rather silky on the outside. (*Don's Mill.*) A deciduous tree in America, in Britain a shrub. Georgia and Florida. Height in America 30 ft. to 50 ft.; in England 4 ft. to 6 ft. Introduced in 1774. Flowers large, white, fragrant, 3 in. across, with yellow filaments; May to August. Capsule globose, brownish; ripe in October.

Somewhat hardier than the preceding species, but requiring the same general treatment.

111. Gordònia pubéscens

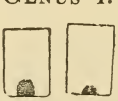
## Order XII. *HYPERICA'CEÆ.*

*Ord. Char.* *Sepals* 4 or 5, unequal, with an imbricate æstivation. *Stamens*, in nearly all, numerous, and in 3 or more parcels. *Fruit*, a capsule or berry of many valves and many cells; the edges of the valves curved inwards. *Seeds* attached to a placenta in the axis, or on the inner edge of the dissepiments.

*Leaves* simple, opposite, exstipulate, deciduous or evergreen; entire, copiously dotted with immersed, pellucid, resinous glands. *Flowers* terminal or axillary, generally yellow. *Sap* yellow, resinous.— Shrubs, natives of Europe, North America, and Asia. The genera in British gardens are two, which are thus contradistinguished: —

| | | |
|---|---|---|
| *Hype'ricum L.* | Capsule membranous. | Stamens polyadelphous. |
| *Androsæ'mum Chois.* | Capsule baccate. | Stamens monadelphous. |

### Genus I.



### *HYPE'RICUM L.* The St. John's Wort. *Lin. Syst.* Polyadélph. Polyánd.

*Identification.* Lin. Gen., 392.; Juss., 255.; Dec. Prod., 1. p. 543.; Don's Mill., 1. p. 601.
*Synonymes.* Fuga Dæmonum; Mille Pertuis, *Fr.*; Johanniskraut, *Ger.*; Iperico, *Ital.*
*Derivations.* The name of *Hypéricum* is as old as the time of Dioscorides; but its origin and meaning are uncertain. Some derive it from the Greek words *huper*, under, and *eikōn*, an image; and suppose it to signify that the upper part of the flower represents a figure. Others state that *huper* signifies through, and that the name alludes to the pellucid dots in the leaves, which form small lenses, through which, when held up to the light, images might be seen. The French name of the plant, Mille Pertuis, a thousand pores, is evidently derived from the same source. The English name, St. John's Wort, and the German one, Johanniskraut, are taken from the country people formerly, both in England and Germany, being in the habit of gathering this plant on St. John's day, to use it to protect themselves from evil spirits. This plant, with some others, was employed to make what was called John's fire, which was supposed to be a security, for those who kindled it, against witchcraft and all attacks of demons. For this reason, also, the *Hypéricum* received the name of Fuga Dæmonum.

*Gen. Char.* *Capsules* membranous. *Stamens* numerous, free or joined at the bases into 3 or 5 bundles. *Petals* 5. *Sepals* 5, more or less connected at the base, unequal, rarely equal. *Styles* 3 to 5, rarely connate in one, permanent. *Capsule* 1- or many-celled, many-seeded, 3—5-valved. Integument of *seed* double. *Embryo* with the radicle situated at the umbilicus, and with semicylindrical cotyledons. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, sub-evergreen or deciduous; ovate-oblong or lanceolate, sessile or subsessile, usually full of pellucid dots on their disks, and some dark ones on their edges, lodging an essential oil. *Flowers* terminal, racemose, yellow. — Low sub-evergreen shrubs; natives of Europe, North America, and Asia; of easy culture in common soil; and propagated by division, suckers, cuttings, or seeds.

## § i. *Ascyreia* Chois. Prod. Hyp.

*Derivation*. From *a*, not, and *skuros*, hard; that is to say, plants soft to the touch.

*Sect. Char.* Sepals connected at the base, and unequal. Stamens numerous. Styles 3 to 5. Flowers terminal, large, few, sub-corymbose. (*Don's Mill.*, i. p. 601.)

### A. *Styles commonly* 3.

1. *H.* ELA'TUM *Ait.* The tall St. John's Wort.

*Identification*. Ait. Hort. Kew., ed. 2. vol. 3. p. 104.; Don's Mill., 1. p. 601.; Tor. and Gray, 1. p. 166.
*Engravings*. Wats. Dend. Brit., t. 85.; and our *fig.* 112.

*Spec. Char., &c.* Younger stems reddish. Leaves ovate-oblong, acute, dilated at the base, somewhat emarginate, with the margins somewhat revolute. Flowers corymbose. Peduncles bibracteate. Sepals ovate-oblong. (*Don's Mill.*) A sub-evergreen shrub. North America. Height 3 ft. to 5 ft. Introduced in 1762. Flowers yellow; July and August. Capsule reddish brown; ripe in October. Decaying leaves yellowish.

112. *Hypéricum elàtum.*

2. *H.* HIRCI'NUM *L.* The Goat-scented St. John's Wort.

*Identification*. Lin. Sp., 1103.; Don's Mill., i. p. 602.
*Synonymes*. *Tragium Clus.*; *Androsæ'mum fœ'tidum Bauh.*, *Park.*, and *Ray*; Mille Pertuis à Odeur de Bouc, *Fr.*
*Engravings*. Schkuhr Handb. 3. t. 213. f. 3.; Wats. Dend. Brit., t. 6.; and our *fig.* 113.

*Spec. Char., &c.* Branches winged. Leaves somewhat emarginate at the base, dilated, sessile, acute at the apex, ovate-lanceolate, with glandular margins. Peduncles bibracteate. Stamens exceeding the corolla in length. Seeds 2, appendiculated. (*Don's Mill.*) A deciduous or sub-evergreen undershrub. Sea coast of Spain. Height 3 ft. to 4 ft. Introduced in 1640. Flowers yellow; July to September. Capsule reddish brown; ripe in October. The leaves of this species, when bruised, have a very disagreeable smell, resembling that of a goat, whence its name.

113. *H. hircinum.*

*Varieties.*

- H. *h.* 2 *obtusifòlium* Dec. — Leaves blunter than the species. Found on the mountains of Corsica, on humid rocks.
- H. *h.* 3 *mìnus* Dec. is a smaller plant than the others, figured in *Dend. Brit.* t. 87.

### B. *Styles commonly* 5.

*H.* KALMIA'NUM L. Kalm's St. John's Wort.

*Identification*. Willd. Sp., 3. p. 438.; Don's Mill., 1. p. 603.; Tor. and Gray, 1. p. 158.
*Synonymes*. *H.* Bartràmium Mill.; Virginia St. John's Wort.
*Engraving*. Our *fig.* 114.

*Spec. Char., &c.* Branches tetragonal. Leaves linear-lanceolate. Flowers 3 to 7, in a terminal corymb. Sepals lanceolate, bluntish. (*Don's Mill.*) A sub-evergreen undershrub. Canada to Virginia. Height $1\frac{1}{2}$ ft. in America; 2 ft. to 3 ft. in England. Introduced in 1759. Flowers yellow; June and July. Capsule reddish brown; ripe in October.

114. *H. Kalmianum*

A neat compact bush, one of the most ornamental of the hardy species of the genus. The general hue of the entire plant is yellow, and the calyxes and the capsule, before they are ripe, particularly so. Flowers very numerous, in upright raceme-like corymbs.

♃ ♃ 4. *H. Ura'lum* Ham. The Urala St. John's Wort.

*Identification.* D. Don Prod. Nep., p. 218.; Don's Mill., 1. p. 603.
*Derivation.* From its name, *Urala swa*, in the Newar language.
*Engravings.* Bot. Mag., t. 2375.; and our *fig.* 115.

115. *Hypéricum Uràlum.*

*Spec. Char., &c.* Branches compressed, 2-edged. Leaves elliptical, mucronulate, smooth, shining. Flowers terminal, somewhat corymbose. Sepals oval, very blunt. Petals orbicular. Styles shorter than the stamens. (*Don's Mill.*) A neat sub-evergreen undershrub. Nepal, on the tops of mountains. Height 2 ft. Introduced in 1823. Flowers yellow; July to September. Capsule reddish brown; ripe in October.

In mild situations, and on a dry soil, it may safely be left through the winter without any protection; but this should not be the case where the situation is cold, and the soil tenacious or humid.

♃ 5. *H.* calyci'num *L.* The *large*-calyxed St. John's Wort.

*Identification.* Lin. Mant., 106.; Willd., 3. p. 1442.; Hook. Scot., 221.; Dec. Prod., 1. p. 546.; Smith's Eng. Fl., 3. p. 323.; and Don's Mill., 1. p. 603.
*Synonymes.* *A*androsæ'mum constantinopolitànum flòre máximo, *Wheeler's Journey*, 205.; the large-flowered St. John's Wort; the large-flowering Tutsan; the terrestrial Sun; Aaron's Beard; Mille Pertuis à grandes Fleurs, *Fr.*; grossblumiger Johanniskraut, *Ger.*; Asciro *Ital.*
*Derivation.* This species was called *A*androsæ'mum by the old writers on botany, on account of the tinge of red in different places on the stems, and the redness of the anthers, which were supposed to give it the appearance of being spotted with blood. It was called Constantinopolitan from its having been found near that city, in 1676, by Sir George Wheeler, Bart. The large size of its flowers is remarkable, and has given rise to most of its other names. The name of the Terrestrial Sun is very appropriate to the large golden flowers, with their long ray-like stamens, lying glittering on a bed of dark green shining leaves, which spread over the surface of the ground. The number and length of the stamens are, doubtless, also the origin of the name of Aaron's Beard.
*Engravings.* Eng. Bot., v. 29. t. 2017.; Bot. Mag., t. 146.; and our *fig.* 116.

*Spec. Char., &c.* Stem tetragonal, dwarf. Leaves ovate, coriaceous, broad, full of pellucid dots. Flowers large, terminal, solitary. Sepals large, obovate, spreading; capsule nodding. (*Don's Mill.*) A beautiful little evergreen undershrub, with dark green shining leaves. Levant, Olympus, Britain, on the western coast of Scotland, and in Ireland near Cork, in woods. Height 1 ft. to 1½ ft. Flowers of a bright golden yellow, with innumerable reddish tremulous anthers; June to September. Capsule reddish brown; ripe in October.

116. *H.* calycinum.

Valuable for covering banks, rockwork, or the surface of the ground in old shrubberies or picturesque woods, especially for the latter purpose, as it thrives perfectly well under the drip and shade of trees. The root creeps, and a small plant will soon extend itself in every direction, especially if the soil be light, so as to cover a great many square yards in a very short space of time. It is an excellent shelter for game. It may be readily increased to any extent by division.

## § ii. *Perforària* Chois.

*Identification.* Chois. Prod. Hyp., p. 44.; Dec. Prod., 1. p. 546.; Don's Mill., 1. p. 603.
*Derivation.* From *perforatus*, perforated; because the leaves are full of pellucid dots, which gives them the appearance of being perforated.

*Sect. Char.* Calyx of 5 equal sepals, toothed in some with glandular teeth, but entire in others, connected at the base. Stamens numerous, free or disposed in 5 sets. Styles commonly 3. Herbs or undershrubs. Flowers axillary, or in terminal panicled corymbs. Leaves rarely linear. (*Don's Mill.*) Undershrubs, from 1 ft. to 3 ft. in height.

A. *Sepals entire.*

6. *H.* PROLÍ'FICUM *L.* The prolific St. John's Wort.

*Identification.* Lin. Mant., 106.; Don's Mill., 1. p. 605.; Tor. and Gray, 1. p. 159.
*Synonymes.* *H.* foliòsum *Jacq.*, *Hort. Schönbr.* 3 p. 27.; *H.* Kalmiànum Du Roi Harbk. 1. p. 310.
*Engravings.* Wats. Dend. Brit, t. 88.; Jacq. Hort. Schönb., t. 299.; and our *fig.* 117.

117. *H.* prolificum.

*Spec. Char., &c.* Stem round. Branches angular. Leaves linear-lanceolate, with revolute edges, full of pellucid dots. Corymbs few-flowered. Sepals ovate-lanceolate, stamens very numerous. Styles usually connected together. (*Don's Mill.*) A sub-evergreen shrub. New Jersey to Florida, in swamps. Height 1 ft. to 4 ft. Introduced in 1758. Flowers yellow; June to August. Capsule reddish brown; ripe in October.

Frequent in gardens, and forming a dense leafy bush, covered with flowers great part of the summer, and with seed-pods in the autumn. Readily distinguished from *H.* Kalmiànum, by the leaves, bracts, and sepals being much smoother and shining.

B. *Sepals toothed, usually with the Teeth glandular.*

7. *H.* EMPETRIFO'LIUM *Willd.* The Empetrum-leaved St. John's Wort.

*Identification.* Willd. Spec., 3. p. 1452.; Don's Mill., 1. p. 610.
*Engravings.* Dend. Brit., t. 141.; and our *fig.* 118.

118. *H.* empetrifòlium.

*Spec. Char., &c.* Stems suffruticose, round, with subulate branchlets. Leaves linear, ternary, with revolute margins. Calyx small, obtuse. Petals without glands. (*Don's Mill.*) A neat little evergreen shrub. South of Europe, near the Mediterranean; and in Greece. Height 1 ft. to 2 ft. Introduced in 1820. Flowers yellow; May to August.

One of the neatest species of the genus, but somewhat tender.

*Other Species of* Hypéricum. — The only truly hardy shrubby species of Hypéricum are, *H.* elàtum, *H.* hircìnum, *H.* calycìnum, *H.* Kalmiànum, and *H.* prolíficum. The other hardy species are of such low growth, that they may be considered, for all practical purposes, as herbaceous plants. H. *nepalénse* Royle appeared to be hardy in the Hort. Soc. Garden, but it was destroyed by the winter of 1837–8. H. *adpréssum* Bartr., H. *rosmarinifòlium* Lam., H. *galiòìdes* Lam., H. *fasciculàtum* Lam., and some other shrubby or frutescent species, are described by Torrey and Gray, but we are not aware of their having been yet introduced.

## GENUS II.

ANDROSÆ'MUM *Chois.* THE ANDROSÆMUM, *or* TUTSAN. *Lin. Syst.* Polyadélphia Polyándria.

*Identification.* Chois. Prod. Hyp., 37.; Dec. Prod., 1. p. 543.; Don's Mill., 1. p. 601.
*Synonymes.* Hypéricum, *L.*; Androsème, *Fr.*; Johanniskraut, *Ger.*; Androsemo, *Ital.*

*Derivation.* From *anēr, andros*, a man, and *haima*, blood; the capsules, when crushed between the fingers, giving out a blood-coloured juice. Tutsan is a corruption of *toute saine*, all heal; and it was applied to the plant formerly from its supposed vulnerary properties.

*Gen. Char.* *Capsule* baccate; usually 1-celled. *Calyx* 5-parted, with unequal lobes. *Petals* 5. *Styles* 3. *Stamens* numerous, disposed in 3 sets. (*Don's Mill.*)

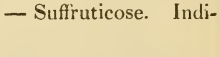
*Leaves* simple, opposite, exstipulate, sub-evergreen. *Flowers* terminal. The whole plant closely resembling a *Hypéricum*. — Suffruticose. Indigenous in Britain.

1. *A.* OFFICINA'LE *Allioni.* The officinal Androsæmum, *or common Tutsan.*

*Identification.* All. Ped., No. 1440.; Dec. Prod., 1. p. 543.; Don's Mill., 1. p. 601.

*Synonymes.* Clýmenon Italòrum *L'Obel*; *Hypéricum Androsæ'mum Lin., Willd., Smith*, and *Hooker*; Park Leaves (because it is frequently found wild in parks); Androsème officinale, *Fr.*; breitblättriges (broad-leaved) Johanniskraut, *Ger.*; Ciciliana *Ital.*

*Engravings.* Blackw., t. 94.; Eng. Bot., t. 1225.; and our *fig.* 119. in flower, and *fig.* 120. showing the fruit.



119. *Androsæ'mum officinàle.*

*Spec. Char., &c.* Leaves ovate, and somewhat heart-shaped, sessile, widely spreading. A sub-evergreen, suffruticose shrub, forming a dense bush, with many stems. Europe; and in England in moist shady woods. Height 2 ft. to 3 ft. Flowers yellow, 1 in. across; July to September. Capsule brownish purple, and lastly, almost black; ripe in October.

The fruit is an ovate capsule, assuming the appearance of a berry: it is at first yellowish green, then red or brownish purple; and, lastly, almost black when ripe. The juice of the capsules, and also that of the leaves, is claret-coloured. The latter, when bruised, have an aromatic scent, and were formerly applied to fresh wounds; and hence the French name of *la toute saine*. In gardening, the plant is valuable as growing under the drip of trees, and thriving and flowering freely in almost any soil or situation. It is readily propagated by division of the root.

120. *Androsæ'mum officinàle.*

## ORDER XIII. *ACERA'CEÆ.*

*ORD. CHAR.* *Flowers* either unisexual or bisexual. *Calyx* and *corolla* equal in the number of their parts, with an imbricated æstivation; the corolla sometimes absent. *Petals* without appendages. *Stamens* inserted upon a disk, which arises from below the pistillum, not agreeing in number with the divisions of the calyx and corolla. *Pistillum* 2-lobed, each lobe having a wing at its back. *Style* 1. *Stigmas* 2. *Fruit* formed of two samaræ, or keys, each containing 1 cell and 1 erect seed. *Embryo* curved, with leafy shriveled cotyledons, and no albumen. (*Lindl.*) — Deciduous trees or shrubs, natives of the temperate climates of Europe, North America, and Asia.

*Leaves* simple, opposite, exstipulate, deciduous, rarely evergreen; variously lobed, rarely pinnate. — The species in British gardens are included in the genera *A'cer* and *Negúndo*, which are thus contradistinguished: —

*A'CER L.* Flowers polygamous. Leaves lobed.
*NEGU'NDO* Mœnch. Flowers diœcious. Leaves pinnate.

## Genus I.

### A'CER *L.* The Maple. *Lin. Syst.* Polygàmia Monœ'cia.

*Identification.* Lin. Gen., No. 1115.; Mœnch Meth., 334.; Dec. Prod., 1. p. 593.; Don's Mill. 1 p. 648.
*Synonymes.* E'rable, *Fr.*; Ahorn, *Ger.*; Acero, *Ital.*; and Arce, *Spanish.*
*Derivation.* From *acer*, hard or sharp, derived from *ac*, Celtic, a point. The name is supposed to be applied to this genus because the wood of some species is extremely hard, and was formerly much sought after for the purpose of making pikes and lances.

*Gen. Char.* *Sexes* hermaphrodite, or monœciously polygamous. *Flowers* with a calyx and corolla. *Calyx* divided into 5 parts, or some number between 4 and 9. *Petals* the same in number. *Stamens* 8, or some number between 5 and 12. *Anthers* 2-lobed. *Carpels* 2, very rarely 3, each a samara; that is, a fruit which is called in Britain, vernacularly, a key.—Deciduous trees, natives of Europe, North America, and Asia.

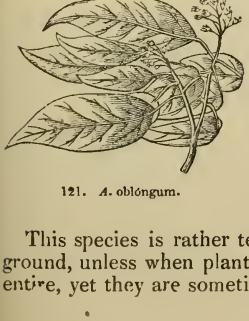
*Leaves* simple, opposite, exstipulate, deciduous, rarely evergreen; variously lobed, toothed. *Flowers* axillary, corymbose. *Fruit* a samara. Decaying leaves rich yellow in some, and red or brown in others.

Several of the species produce useful timber; and sugar is one of the constituent parts of the sap of all of them. They all prefer a situation sheltered rather than exposed; a free, deep, loamy soil, rich rather than sterile, and neither very wet, nor very dry. They are propagated by seeds and layers, or by grafting. The maturity of the seed may be proved by opening the key, and observing if the cotyledons are green, succulent, and fresh; if the green colour of the cotyledons is wanting, the seeds are good for nothing. The seeds of all the species may either be sown in autumn, after they are gathered, or in spring: and the latter method is preferable where moles abound, as they are very fond of the seeds. Sown in spring, they come up in five or six weeks afterwards; with the exception of those of the *A.* campéstre, which never come up till the second or third year. The seeds should not be covered with more than a quarter to half an inch of soil. The surface of the ground in which they are sown may be advantageously shaded with leaves, fronds of ferns, heath, or straw.

A. *Leaves simple, or only slightly or occasionally lobed.*

♃ ♣ 1. *A.* oblo'ngum *Wall.* The oblong-*leaved* Maple.

*Identification.* Wall. in Litt.; Dec. Prod., 1. p. 593.; Don's Mill., 1. p. 648.
*Synonymes.* *A. laurifòlium D. Don, Prod. Fl. Nep.* p. 249.; *A. Buximpàla* Hamilt.
*Engravings.* Our *figs.* 121, 122., reduced to our usual scale; and the figures of the leaves, of the natural size, as given in the plate, p. 95.



121. *A.* oblóngum.

*Spec. Char., &c.* Leaves oblong-lanceolate, acuminated, quite entire, coriaceous, smooth, rounded at the base. Racemes compound; wings of fruit parallel, smooth, separated. (*Don's Mill.*) A low, deciduous tree; in Britain, a rather tender shrub. Nepal. Height 20 ft. Introduced in 1824. Flowers greenish yellow; February. Keys?; ripe?.

122. *A.* oblóngum

This species is rather tender, and somewhat difficult to keep in the open ground, unless when planted against a wall. Though the leaves are generally entire, yet they are sometimes lobed, or show a tendency to become so.

### ♆ 2. *A.* TATA'RICUM *L.* The Tartarian Maple.

*Identification.* Lin. Sp., 1495.; Dec. Prod., 1. p. 593.; Hayne Dend., p. 209.; Don's Mill., 1. p. 648.
*Synonymes.* E'rable de Tartarie, *Fr.*; Tartarische Ahorn, *Ger.*; Zarza-modon, or Locust Tree, *Russ.*
*Engravings.* Pall. Fl. Ros., t. 3.; Tratt. Arch., 1. No. 1.; Wats. Dend. Brit., t. 160.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our *fig.* 123.; and the figure of the leaves, of the natural size, in the plate forming p. 96.

*Spec. Char., &c.* Leaves cordate, undivided, serrated, with obsolete lobes. Racemes compound, crowded, erect; wings of fruit parallel, young ones puberulous. (*Don's Mill.*) A low deciduous tree, native of Tartary. Height 20 ft. to 30 ft. Introduced in 1759. Flowers pale greenish yellow, sometimes slightly tinged with red; May and June. Keys brown; ripe in August. Decaying leaves reddish yellow, or brown. Naked young wood brown.

When raised from seed, the plant will come into flower in 5 or 6 years; and, in good soil, it will attain the height of 15 ft. in 10 years. According to

123. *A*cer tatáricum.

some, it will thrive in a moister soil than most others. In ornamental plantations, it is valuable on account of the early expansion of its leaves, which appear before those of almost every other kind of *A*cer.

B. *Leaves 3-lobed, or trifid; rarely 5-lobed.*

### ♆ 3. *A.* SPICA'TUM *Lam.* The spiked-*flowered* Maple.

*Identification.* Lam. Dict., 2. p. 381.; Dec. Prod., 1. p. 593.; Don's Mill., 1. p. 648.; Tor. and Gray, 1. p. 246.
*Synonymes.* *A.* montânum *Ait. Hort. Kew.*, 3. p. 435.; *A.* pennsylvánicum *Du Roi Harbk.* t. 2.; *A.* parviflòrum *Ehrh.*; Mountain Maple, E'rable de Montagne, *Fr.*; Berg Ahorn, *Ger.*; Acero di Montagna, *Ital.*
*Engravings.* Trat. Arch., No. 13.; the plate of this species in Arb. Brit., 1st. edit., vol. v.; our *fig.* 124.; and the figure of the leaves, of the natural size, in the plate forming p. 97.

*Spec. Char., &c.* Leaves cordate, 3- or slightly 5-lobed, acuminated, pubescent beneath, unequally and coarsely serrated. Racemes compound, erect. Petals linear. Fruit smooth, with the wings rather diverging. (*Don's Mill.*) A deciduous shrub, or small tree. Canada to Georgia. Height 6 ft. to 10 ft. in America; 18 ft. to 20 ft. in England. Introduced in 1750. Flowers small, greenish, raceme many-flowered; May and June. Keys often reddish; ripe in August. Decaying leaves yellowish red. Naked young wood brown.

124 A'cer spicàtum

Very ornamental in autumn, from its small keys, which are fixed upon slender pendulous spikes, and have their membranous wings beautifully tinged with red when ripe. Michaux states that this species, grafted upon the sycamore, is, like the A'cer striàtum, augmented to twice its natural dimensions; a fact which we have never had an opportunity of seeing verified.

♃ 4. *A.* STRIA'TUM *L.* The striped-*barked* Maple.

125. A'cer striàtum.

*Identification.* Lam. Dict., 2. p. 381.; Dec. Prod., 1. p. 593.; Don's Mill., 1. p. 648.
*Synonymes.* *A.* pennsylvánicum *Lin. Sp.* 1496., and *Tor. & Gray*, 1. p. 246.; *A.* canadénse *Marsh.*

and *Duh. Arb.* 1. t. 12.; Snake-barked Maple. Moose Wood, striped Maple, Dog Wood; E'rable jaspé, *Fr.*; gestreifter Ahorn, *Ger.*; Acero screziato, *Ital.*
*Engravings.* Mill., t. 7.; Tratt. Arch., No. 11.; Mich. Fel. Arb., 2. t. 17.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our *fig.* 125.; and *fig.* 146. of the leaves, of the natural size, forming p. 98, 99.

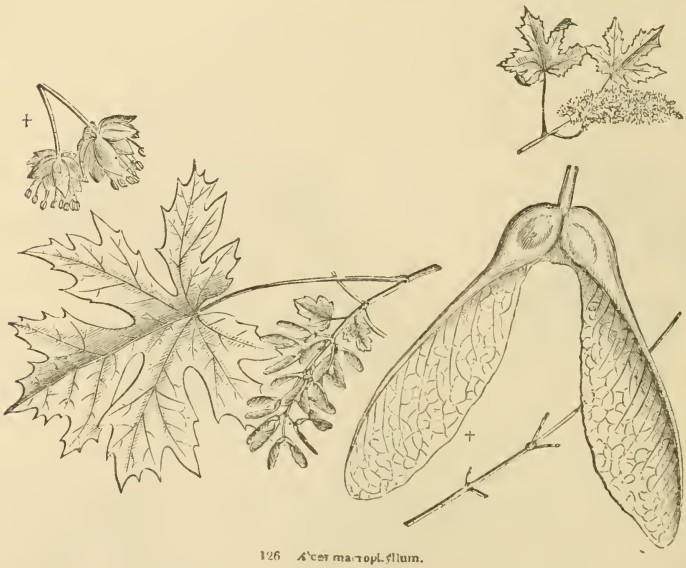
*Spec. Char., &c.* Leaves cordate, 3-lobed, acuminated, finely and acutely serrated. Racemes pendulous, simple. Petals oval. Fruit smooth, with the wings rather diverging. (*Don's Mill.*) A deciduous tree, with green bark, striped with white. Canada to Georgia. Height 8 ft. to 10 ft. in America; 10 ft. to 20 ft. in England. Introduced in 1755. Flowers yellowish green, on long peduncles; May. Keys brown, and remarkable for a cavity on one side of the capsules; ripe in August. Decaying leaves yellowish green. Naked young wood green, striped with white and black.

The buds and leaves, when beginning to unfold, are rose-coloured; and the leaves, when fully expanded, are of a thick texture, and finely serrated. From the great beauty of its bark, this tree deserves a place in every collection. It is propagated by seeds, which are received from America; or by grafting on *A.* Pseùdo-*Plátanus*.

### C. *Leaves 5-lobed.*

ϒ 5. *A.* MACROPHY'LLUM *Pursh.* The long, *or large*, leaved Maple.

*Identification.* Pursh, Fl. Amer. Sept., 1. p. 267.; Dec. Prod., 1. p. 594.; Don's Mill., 1. p. 649.; Tor and Gray, 1. p. 246.
*Engravings.* Hook. Fl. Bor. Amer., 1. t. 38.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our *fig.* 126.; and *figs.* 147. and 148. of the leaves, of the natural size, forming p. 100, 101. and 102, 103.



126 *Acer macrophyllum.*

*Spec. Char. &c.* Leaves digitately 5-lobed, with roundish recesses. Lobes somewhat 3-lobed, repandly toothed, pubescent beneath. Racemes compound, erect. Stamens 9, with hairy filaments. Ovaries very hairy. (*Don's Mill.*) A deciduous tree of large size. North-west coast of North America, on the alluvial banks of rivers. Height 40 ft. to 90 ft. Introduced in 1826. Flowers yellow, fragrant; April and May. Keys brown; ripe in September. Decaying leaves yellowish brown. Naked young wood brown. Buds green.

Leaves nearly 1 ft. broad. Carpels sometimes 3. Sap as abundant as in any species, except in *A.* sacchárinum; the wood soft, whitish, but beautifully veined. (*Tor. and Gray.*) This species is quite hardy in the climate of London, and promises to form a most valuable addition to our ornamental, and, possibly, to our timber, trees. The tree in the Hort. Soc. Garden is between 40 ft. and 50 ft. high, after having been thirteen years planted; and it has flowered, and ripened some seeds.

♃ 6. *A.* PLATANÖI'DES *L.* The Platanus-like, *or Norway*, Maple.

*Identification.* Lin. Sp., 1496.; Dec. Prod., 1. p. 649.; Don's Mill., 1. p. 649.
*Synonymes.* E'rable plane, or E'rable de Norvège, *Fr.*; spitz Ahorn, or spitzblättriger Ahorn, *Ger.*; Acero riccio, *Ital.*
*Engravings.* Duh. Arb., 1. t. 10. f. 1.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our *fig.* 129.; and *fig.* 149. of the leaves, of the natural size, forming p. 104, 105.

*Spec. Char., &c.* Leaves cordate, smooth, 5-lobed. Lobes acuminated, with a few coarse acute teeth. Corymbs stalked, erectish, and, as well as the fruit, smooth. Fruit with divaricated wings (*Don's Mill.*) A deciduous tree, above the middle size. Norway to Switzerland, but not in Britain. Height 30 ft. to 60 ft. Introduced in 1683. Flowers rich yellow; April and May. Keys brown; ripe in September and October. Opening foliage and flowers, in spring, of a bright yellow; when decaying, also, of a fine yellow. Naked young wood smooth, brown.

*Varieties.*

♃ A. p. 2 *Lobèlii.* *A.* Lobèlii Tenore; *A. p*latanöìdes *Don's Mill.* i. p. 649. (Our *fig.* 127.; and *fig.* 150. of the leaves, of the natural size, in the plate forming p. 106.) — The leaves are very slightly heart-shaped, irregularly toothed, 5-lobed, with the lobes more or less abruptly pointed. The bark of the young wood striped, somewhat in the manner of that of *A.* striàtum; by which circumstance the plant, in a young state, is readily distinguished from *A. p*latanöìdes. A large tree, native of the kingdom of Naples, and found on mountains. One of the most beautiful acers in cultivation; but very little known, though it was introduced about 1683. There is a tree of it at Croome, above 20 ft. high, which has ripened seeds.

127. *A'cer platanöìdes Lobèlii.*

♃ A. p. 3 *variegàtum* Hort. *A. p.* álbo variegàtum Hayne. — Leaves variegated with white.

♃ A. p. 4 *aúreo variegàtum* Hort. — Leaves variegated with yellow.

♃ A. p. 5 *laciniàtum* Dec. *A. p.* c íspum *Lauth*; Eagle's Claw, or Hawk's Foot Maple. (The plate of this variety in Arb. Brit., 1st edit., vol. v.; our *fig.* 128.; and *fig.* 151. of the leaves, of the natural size, in the plate forming p. 107.) — Leaves deeply and variously cut.

128. *Acer platanoïdes laciniàtum.*

It is frequently produced from seed, being found by nurserymen among seedlings of the species.

The tree, in general appearance, at a distance, is like the common sycamore; but, on a nearer approach, the leaves are found of a smoother and finer texture. The roots extend considerably, both downwards and laterally. The bark is green on the young shoots, but it afterwards becomes of a reddish brown, dotted with white points: that of the trunk is brown, and rather cracked. The buds are large and red in autumn, becoming of a still darker red in the course of the winter: those on the points of the shoots are always the largest. The leaves

129. *Acer platanoïdes.*

are thin, green on both sides, and shining. When the petiole is broken, an acrid milky sap issues from it, which coagulates with the air. The leaves are about 5 in. long, and nearly the same in width. The petioles are longer than the

leaves. About the end of October, the leaves become either of a clear, or a yellowish, red, and then drop off. The flowers appear just before the leaves, near the end of April: they form a short raceme, somewhat corymbose. The fruits, or keys, have their wings yellow. It is not till the tree has attained the age of nearly 40 years that it produces fertile seeds, though it will flower many years before that period. The rate of growth of this species, when once established, is from 18 in. to 3 ft. long every year, till it attains the height of 20 or 30 feet; which, in favourable situations, it does in ten years. The wood weighs, when dry, 43 lb. 4 oz. per cubic foot; is easily worked, takes a fine polish, and absorbs and retains all kinds of colours. It may be used for all the various purposes of the wood of the common sycamore. Sugar is made from the sap in Norway, Sweden, and Lithuania. Seeds are ripened in England in abundance.

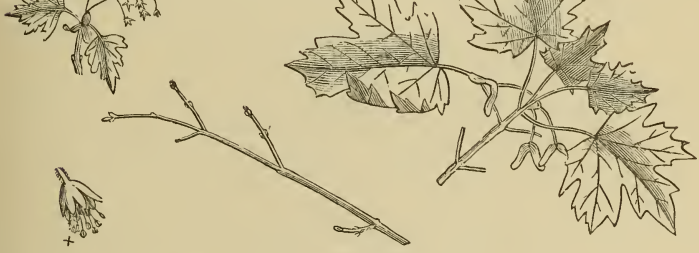
♃ 7. *A.* SACCHA'RINUM *L.* The Sugar Maple.

*Identification.* Lin. Sp., 1496.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 650.; Tor. and Gray, 1. p. 248.

*Synonymes.* Rock Maple, Hard Maple, Bird's-eye Maple, *Amer.*; Acero del Canadà, *Ital.*

*Engravings.* Michx. Fl. Arb, 2. t. 15.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our *fig.* 130.; and *fig.* 152. of the leaves, of the natural size, in the plate forming p. 108, 109.

*Spec. Char., &c.* Leaves cordate, smooth, glaucous beneath, palmately 5-lobed; lobes acuminated, serrately toothed. Corymbs drooping, on short peduncles. Pedicels pilose. Fruit smooth, with the wings diverging. (*Don's Mill.*) A deciduous tree. Canada to Georgia. Height in America 50 ft. to 80 ft.; in England 30 ft. to 40 ft. Introduced in 1735. Flowers small, yellowish, and suspended on long, slender, drooping peduncles; April and May. Keys brown; ripe in September. Decaying leaves rich yellow. Naked young wood smooth, whitish brown.



130. *A*'cer sacchárinum.

*Variety.*

♃ A. *s.* 2. *nìgrum.* *A.* s. β nìgrum *Tor. & Gray*; *A.* nìgrum *Michx.*; the black Sugar Tree, or Rock Maple, *Michx. Arb.* 2. t. 16.—Leaves pale green beneath, the veins of the lower surface and petioles minutely villous, pubescent; wings of the fruit a little more diverging. (*Tor. and Gray*, i. p. 248.) Michaux, who considered this variety a species, says the leaves resemble those of the species in every respect, except that they are of a darker green, and of a thicker texture, and somewhat more bluntly lobed. The tree is indiscriminately mixed with the common sugar maple, through extensive ranges of country in New Hampshire, Vermont, and Connecticut; but is readily distinguished from it by the smaller size which it attains, and the darker colour of its leaves. The soil in which it flourishes best is a rich, strong, sandy loam; and there it usually grows to the height of 40 or 50 feet.

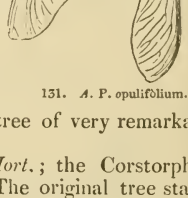
Closely resembling *A.* platanòides in foliage, except in being somewhat

glaucous beneath, and in the fruit being much more divergent. Bark of the trunk white. Leaves 3 in. to in. in length, generally wider than long. The buds have a fine ruddy tint, especially in spring before they expand. The tree in England is rather tender, and never attains a large size; but in America the timber is valuable, and the sap produces sugar. American seeds.

♆ 8. *A.* Pseu'do-*Pla'tanus* *L.* The Mock Plane Tree, *the Sycamore, or Great Maple.*

*Identification.* Lin. Sp., 1469.; Don's Mill., 1. p. 648.
*Synonymes.* Plane Tree, *Scotch*; E'rable Sycamore, E'rable blanc de Montagne, fausse Platane, grand E'rable, *Fr.*; Ehrenbaum, weisser Ahorn, gemeine Ahorn, *Ger.*; Acero Fico, *Ital.*
*Engravings:* Duh. Arb., 1. t. 36; Schmidt Arb., 1. p. 34.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our *fig.* 132.; and *fig.* 153. of the leaves, of the natural size, in the plate forming p. 110, 111.

*Spec. Char., &c.* Leaves cordate, smooth, with 5 acuminated, unequally toothed lobes. Racemes pendulous, rather compound; with the rachis, as well as the filaments of stamens, hairy. Fruit smooth, with the wings rather diverging. (*Don's Mill.*) A deciduous tree of the first rank. Europe and Britain, in wooded mountainous situations. Height 30 ft. to 80 ft. Flowers greenish yellow, mostly hermaphrodite; May and June. Keys reddish brown; ripe in October. Decaying leaves brown, with dark blotches. Naked young wood reddish brown. Buds large, green, or tinged with red.



131. *A.* P. opulifòlium.

*Varieties.*

♆ A. *P.* 2 *opulifòlia.* *A.* opulifòlium *Hort.*; *A.* trilobàtum *Hort.*; *A.* barbàtum *Hort.* (Our *fig.* 132.) — Leaves and fruit smaller than in the species, as shown in *fig.* 155. of the leaves, in the plate forming p. 114. We have no doubt of this being the *A.* opulifòlium of Thuillier and Villars, L'E'rable duret, and L'E'rable ayart, *Fr.*, which is said by these authors to resemble *A.* Pseùdo-*Platanus*, but to be much smaller. It is a native of the Alps and Pyrenees. Introduced in 1812. Height 15 ft. to 20 ft.

♆ A. *P.* 3 *longifòlia.* *A.* longifòlium *Booth.*—Leaves more deeply cut, and the petioles much longer than in the species. Altogether a tree of very remarkable aspect.

♆ A. *P.* 4 *flàvo variegàta.* — *A.* P. lutéscens *Hort.*; the Corstorphine Plane. — Leaves variegated with yellow. The original tree stands near an old pigeon-house in the grounds of Sir Thomas Dick Lauder, Bart., in the parish of Corstorphine, near Edinburgh. Seeds of this variety, sown, have produced plants with the character of the parent to a certain extent.

♆ A. *P.* 5 *álbo variegàta* Hayne.—Of all the variegated varieties of *A'cer*, it must be acknowledged that this is the most ornamental; especially in spring, when the leaves first expand.

♆ A. *P.* 6 *purpùrea* Hort. — Leaves of a fine purple underneath. This variety was found in a bed of seedlings, in Saunders's Nursery, Jersey, about 1828, and is now to be met with in all the principal nurseries. The tree has a very singular effect when the leaves are slightly ruffled by the wind, alternately appearing clothed in purple and in pale green. In spring, when the leaves first expand, the purple bloom is less obvious than when they become matured, at which time it is very distinct.

*Other Varieties.* In the garden of the Hort. Soc. there is a variety called *Hodgkins's Seedling*, with yellow-blotched leaves; and another, called *Leslie's*

*Seedling.* In Hayne's *Dendrologische Flora* there are, also, the following varieties: A. *P. stenóptera*, A. *P. macróptera*, and A. *P. micróptera*, which differ in the proportions of the wings of the keys, and do not appear worth farther notice. In all seed beds and young plantations some of the plants will be found with the petioles and the buds red, and others with the petioles and the buds greenish yellow: such trees, when of considerable size, are very distinct in their general aspect, when in bud, and when they have newly come into leaf; but after midsummer, when the leaves are fully matured, and begin to get rusty, the trees are scarcely distinguishable. Different plants also differ much in the time of their coming into leaf, and of dropping their leaves; and some of the more remarkable of these it might be worth while to propagate by extension.

132. *A*'cer Pseùdo-*Plátanus*.

The growth of the common sycamore is very rapid compared with that of most other species of *A*'cer, particularly when it is in a deep, free, rich soil, and in a mild climate. It arrives at its full growth in 50 or 60 years; but it requires to be 80 or 100 years old before its wood arrives at perfection. In marshy soil, or in dry sand, and even on chalk, the tree never attains any size. It produces fertile seeds at the age of 20 years, but flowers several years sooner; sometimes even perfecting its seeds sooner also. The longevity of the tree is from 140 to 200 years, though it has been known of a much greater age. The wood weighs per cubic foot, newly cut, 64 lb.; half-dry, 56 lb; dry, 48 lb. It loses, in drying, about a twelfth part of its bulk. When the tree is young, it is white; but, as the tree gets older, the wood becomes a little yellow, and often brown, especially towards the heart. It is compact and firm, without being very hard; of a fine grain, sometimes veined, susceptible of a high polish, and easily worked, either on the bench, or in the turning-lathe. It does not warp, and is not likely to be attacked by worms. It is used in joinery and turnery, and cabinet-making; by musical instrument makers; for cider-presses; and, sometimes, for gun-stocks. Formerly, when wooden dishes and spoons were more used than they are at present, it was much in demand, especially in Scotland, by the manufacturers of these articles. As underwood, the sycamore shoots freely from the stool, to the age of 80 or 100 years. As a timber tree, it is most advantageously cut down at the age of 80 years, or from that age to 100. As an ornamental tree, it produces the best effect, either singly, or in groups of two or three, placed sufficiently near to form a whole, but not so as to touch each other; and in rows or avenues. The varieties with variegated leaves are very ornamental in the beginning of

summer ; but their leaves are almost always more or less imperfect, especially on the edges, and fall off much sooner in the autumn than those of the species. The leaves of the purple variety are not liable to the same objection as those of the variegated sorts. Seeds ; and the varieties by grafting on the species.

♀ 9. *A.* OBTUSA'TUM *Kit.* The obtuse-*lobed-leaved* Maple.

*Identification.* Kit. in Willd. Spec., 4. p 948.; Dec. Prod., 1. p. 594.; Don's Mill., 1. p. 649.
*Synonymes.* *A.* neapolitànum *Tenore*; *A.* hybridum in the Lond. Hort. Soc. Gard. in 1834 ; the Neapolitan Maple.
*Engravings.* Tratt. Arch., 1. No. 14. ; the plate of this species in Arb. Brit., 1st edit., vol. v. ; our *fig.* 133. ; and *fig.* 154. of the leaves, of the natural size, forming p. 112, 113.

*Spec. Char., &c.* Leaves cordate, roundish, 5-lobed; lobes bluntish (or pointed), repandly toothed, velvety beneath. Corymbs pendulous. Pedicels hairy. Fruit rather hairy, with the wings somewhat diverging. (*Don's Mill.*) A deciduous tree of the first rank, of as rapid growth as *A.* Pseùdo-Plátanus. Hungary, Croatia, and many parts of Italy, on hills and mountains. Height 40 ft. to 60 ft. Introduced in 1825. Flowers greenish yellow, few in a panicle ; May and June. Keys brown ; ripe in September. Decaying leaves dark brown. Naked young wood smooth and brown. Buds prominent, green.

133. *A*'cer obtusàtum.

*Varieties.*— In the Neapolitan territory, this tree is probably somewhat different in its habit and aspect from what it is in Hungary ; and hence, the A. *neapolitànum* of Tenore may be considered a variety. The following also appear to belong to this species : —

♀ A. *o.* 2 *coriàceum.* *A.* coriàceum *Bosc.* (Don's Mill., 1. p. 649. ; and our *fig.* 134.) — Leaves coriaceous, the same length as breadth, 3-5-lobed, denticulated, smooth. Corymbs loose. Wings of fruit erectly divergent. Native of ?. (*Don's Miller.*) There are small plants of this *A*'cer in the collection of Messrs. Loddiges, which appear to us to belong to this species, though it is with considerable doubt that we have placed it here. Possibly it may belong to *A. p*latanöìdes, as we once thought, or to *A.* O'palus.

134. *A. o.* coriàceum.

♀ A. *o.* 3 *ibéricum.* *A.* ibéricum *Bieb. Fl. Taur.* p. 247. — Leaves shining, glaucous beneath, bluntly three-lobed ; lobes furnished with one or two teeth ; lateral ones marked with the middle nerve to the insertion of the petiole. Petioles a little shorter than the leaves. Tree 20 ft. in height. A native of Georgia. (*Don's Mill.*, i. p. 649.) As we have only seen plants a few inches high, we may be mistaken in considering *A.* ibéricum as a variety of *A.* obtusàtum.

ϒ A. *o.* 4. *lobàtum*, *A.* lobàtum *Fisch.*, has the leaves 7-lobed, according to *Don's Miller*, but the young plants bearing this name in the Hort. Soc. Garden, which was raised from seeds received from Dr. Fischer of Petersburg, appears obviously to belong to *A.* obtusàtum.

D. *Leaves* 5-, *rarely* 7-*lobed.*

ϒ 10. *A.* O'PALUS *Ait.* The Opal, *or Italian*, Maple.

*Identification.* Ait. Hort. Kew., 3. p. 436.; Dec. Prod., 1. p. 594.; Don's Mill., 1. p. 649.; Webb Iter Hispan., 60.
*Synonymes.* *A.* rotundifòlium *Lam. Dict.* 3. p. 382.; *A.* ìtalum *Lauth Ac.* No. 8.; *A.* villòsum *Presl*; l'E'rable Opale, E'rable à Feuilles rondes, or E'rable d'Italie, *Fr.*; Loppo, *Ital.*
*Derivation.* The specific appellation of O'palus has been given to this species, probably from the thick opal-like aspect of the leaves.
*Engravings.* Baudril. Traité, &c., vol. 5. p. 13.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our *fig.* 135.; and *fig.* 156., of the leaves, of the natural size, in the plate forming p. 115.

*Spec. Char., &c.* Leaves more or less heart-shaped, roundish, 5-lobed, smooth beneath; the lobes generally obtuse, and coarsely serrated. Flowers in drooping corymbs. Keys smooth. (*Pen. Cyc.*) A low deciduous tree. Corsica. Height 8 ft. to 12 ft. Introd. 1752. Flowers whitish; May to June. Keys small, brown; ripe Sept. Decaying leaves yellowish brown.

A branchy tufted tree, covered with smooth leaves, somewhat coriaceous, roundish, indented, with five blunt lobes, deep green on the upper surface, and

135. *A*'cer O'palus.

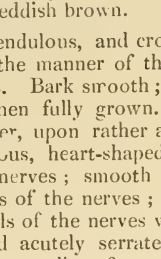
somewhat glaucous underneath, with long red petioles. Its flowers are whitish, in short racemes; and the small fruits, or keys, which succeed them, are almost round. It is found in forests and on mountains in Corsica; in Spain, on the Sierra Nevada; and in Italy, where, from the denseness of its shade, it is sometimes planted by road sides, and in gardens near houses. The red colour of the petioles of the leaves, of the fruits, and even the red tinge of the leaves themselves, more especially in autumn, give it rather a morbid appearance. It pushes later in the spring than most of the other species.

ϒ 11. *A.* CIRCINA'TUM *Pursh.* The round-*leaved* Maple.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 267.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 651. Tor. and Gray, 1. p. 247.
*Engravings.* Hook. Amer., t. 39.; our *fig.* 136.; and *fig.* 157. of the leaves, of the natural size, in the plate forming p. 116.

*Spec. Char., &c.* Leaves orbicular, rather cordate at the base, 7-lobed, smooth on both surfaces; lobes acutely toothed; nerves and veins hairy at their origin. (*Don's Mill.*) A deciduous tree of the middle size. N. W. coast of North America, between lat. 43° and 49°. Height 20 ft. to 40 ft. Introd. 1826. Flowers with the sepals purple, and the petals white; April and May. Keys purplish brown, with thin straight wings, which are so divaricate as to form right angles with the peduncle; the lower margin scarcely

thickened. (*Tor. and Gray*). Decaying leaves of a fine reddish yellow. Naked young wood reddish brown.



136. *A*'cer circinàtum.

Branches slender, pendulous, and crooked; often taking root, in the manner of those of many species of *F*icus. Bark smooth; green when young, white when fully grown. Leaf the length of the finger, upon rather a short footstalk, membranaceous, heart-shaped, with 7—9 lobes, and 7—9 nerves; smooth above, except hairs in the axils of the nerves; downy beneath, and in the axils of the nerves woolly: lobes ovate, acute, and acutely serrated; the sinuses acute: the nerves radiate from the tip of the petiole, and one extends to the tip of each lobe. Flowers of a middling size, in nodding corymbs, that are on long peduncles. (*Hook. Fl. Bor. Amer.*) This is a very marked and beautiful species; distinguishable, at sight, by the regular form of its leaves, and their pale reddish green colour. Though this fine tree has been in the country since 1826, it seems to have been comparatively neglected, for there is no good specimen that we know of in the neighbourhood of London. At High Clere, a thriving tree has ripened seeds for some years past; so that there can be no doubt of its hardiness.

### ✻ 12. *A.* PALMA'TUM *Thunb.* The palmate-*leaved* Maple.

*Identification.* Thunb. Fl. Jap., p. 161.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 650.
*Engravings.* Tratt. Arch., 1. No. 17.; and *fig.* 158. of the leaves, of the natural size, in the plate forming p. 117.

*Spec. Char., &c.* Leaves smooth, palmately divided into 5—7 lobes down beyond the middle; lobes acuminated, oblong, serrated. Umbels 5—7-flowered. (*Don's Mill.*) A low deciduous tree; in England a rather delicate shrub. Japan. Height in Japan, 20 ft. Introd. in 1820. Flowers greenish yellow and purple; May. Keys?. Decaying leaves reddish yellow.

This species requires the protection of a wall; having been, like *A.* oblongum, killed to the ground in the open air, in the Hort. Soc. Garden, in the winter of 1837–8.

### ✻ 13. *A.* ERIOCA'RPUM *Michx.* The hairy-fruited, *or white*, Maple.

*Identification.* Michx. Fl. Amer. Bor., 2. p. 213.; Don's Mill., 1. p. 650.
*Synonymes.* *A.* dasycárpum *Willd. Spec.* 4. p. 985., *Tor. & Gray*, 1. p. 248.; *A.* tomentòsum *Hort. Par.*; *A.* glaúcum *Marsh.*; *A.* virginiànum *Duh.*; *A.* rùbrum *Wangenh.*; white, silver-leaved, or soft, Maple, *United States*; Sir Charles Wager's Maple; E'rable à Fruits cotonneux, or E'rable blanc, *Fr.*; rauher Ahorn, *Ger.*; Acero cotonoso, or Acero bianco, *Ital.*
*Engravings.* Desf. Ann. Mus., 7. t. 25.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our *fig.* 137.; and *fig.* 159. of the leaves, of the natural size, in the plate forming p. 118.

*Spec. Char., &c.* Leaves truncate at the base, smooth and glaucous beneath, palmately 5-lobed, with blunt recesses, and unequally and deeply toothed lobes. Flowers conglomerate, on short pedicels, apetalous, pentandrous. Ovaries downy. (*Don's Mill.*) A middle-sized tree. North America, from lat. 43° to Georgia. Height in America 10 ft. to 40 ft.; in England 30 ft. to 50 ft. Introduced in 1725. Flowers small, pale yellowish purple; March and April. Keys brown; ripe in July.

*Varieties.* There are several names in nurserymen's catalogues, such as *A.* coccíneum, *A.* macrocárpum, *A.* flóridum, *A.* Pàvia which are only very slight varieties of *A.* eriocárpum. The last-named variety, introduced by Messrs. Booth, has received the absurd name of Pàvia, from the upper surface of the leaves being slightly wrinkled, somewhat in the manner of those of the horsechestnut. As the species seeds freely, endless varieties may be obtained from seed beds.

Distinguished from *A. rubrum* by the leaves being more decidedly 5-lobed, the lobes deeply cut, and the whole leaf more tomentose. A very desirable species, from the rapidity of its growth, the graceful divergent direction of its branches, the beauty of its leaves, and the profusion of its early flowers. In mild seasons, these flowers begin to burst from their buds in the first week in January; and they are often fully expanded by the end of February or beginning of March. It requires a deep free soil, and more moisture than most of the other species. It ripens its seeds, both in America and Britain, by midsummer, or earlier; and, if these are immediately sown, they come up, and produce plants which are 8 or 10 inches high by the succeeding autumn.

137 *A*'cer eriocárpum.

### ♃ 14. *A.* RU'BRUM *L.* The red-*flowering, or scarlet,* Maple.

*Identification.* Lin. Spec., 1496.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 650.; Tor. and Gray, 1. p. 249.

*Synonymes.* *A.* virginiànum *Herm.*; *A.* coccíneum *Ait. & Mich.*; *A.* glaúca *Marsh. Arbust.*; *A.* caroliniànum *Walt.*; *A.* sanguíneum *Spach*; soft Maple, Swamp Maple, red Maple; E rable rouge, *Fr.*; rother Ahorn, *Ger.*

*Engravings.* Mich. Arb., 2. t. 14.; Schmidt Arb., 1. t. 6.; the plate of the tree in Arb. Brit., 1st edit., vol. v.; our *fig.* 138.; and *fig.* 160. of the leaves, of the natural size, in the plate forming p. 119.

138. *A*'cer rùbrum.

*Spec. Char., &c.* Leaves cordate at the base, glaucous beneath, deeply and unequally toothed, palmately 5-lobed, with acute recesses. Flowers conglomerate, 5-petaled, pentandrous. Ovaries smooth. (*Don's Mill.*) A

large tree with numerous divergent slender branches. Canada to Florida. Height in America 30 ft. to 80 ft.; in England 30 ft. to 60 ft. Introduced in 1656. Flowers small, dark red, appearing a fortnight before the leaves; March and April. Keys brown; ripe in September.

*Variety.*

♃ A. *r.* 2 *intermèdium* Lodd. seems intermediate between this species and *A.* eriocárpum.

In England distinguished at sight from *A.* eriocárpum by the leaves being much less cut, and less white beneath, and by the tree being generally less vigorous. The red-flowered maple, whether we regard the beauty of its flowers and opening leaves in early spring, its red fruits in the beginning of summer, or its red foliage in autumn, deserves to be considered one of the most ornamental of hardy trees. Contrary to the general character of the maples, this species is said to thrive best in moist soil, which must, however, at the same time, be rich; and, for the tree to attain a large size, the situation ought to be sheltered. In Britain it is chiefly propagated by layers; but, on the Continent, almost always by seeds, which ripen before midsummer, even sooner than those of *A.* eriocárpum, and, if sown immediately, come up the same season. The seeds, even when mixed with soil, do not keep well; and, in general, but a small proportion of those sent home from America vegetate in Europe

### ♃ 15. *A.* MONSPESSULA'NUM *L.* The Montpelier Maple.

*Identification.* Lin. Spec., 1497.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 649.
*Synonymes.* *A.* trilobum *Mœnch*; *A.* trifòlium *Duh.*; *A.* trilobàtum *Lam.*; E'rable de Montpelier, *Fr*; Französischer Ahorn, *Ger.*; Acero minore, *Ital.*
*Engravings.* Schmidt Arb., 1. t. 14.; and Krause, t. 101.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our *fig.* 139.; and *fig.* 161. of the leaves, of the natural size, in the plate forming p. 120.

*Spec. Char., &c.* Leaves cordate, 3-lobed; lobes almost entire, and equal. Corymbs few-flowered, pendulous. Fruit smooth, with the wings hardly diverging. A low tree. South of Europe. Height 15 ft. to 40 ft. Introduced in 1739 Flowers pale yellow; May. Keys brown; August.

139. *A'cer monspessulanum.*

In general aspect the tree resembles *A.* créticum, which has much shorter footstalks, and coriaceous leaves. It also resembles *A.* campéstre, which,

however, has the leaves 5-lobed, while in *A.* monspessulànum they are only 3-lobed. See the figures of leaves in p. 120. and 121. The leaves, in mild seasons, remain on through the greater part of the winter. Seeds; which it ripens in great abundance.

♆ 16. *A.* CAMPE'STRE *L.* The *common, or* Field, Maple.

*Identification.* Lin. Spec., 1497.; Hayne Dend., p. 211.; Dec. Prod., 1. p. 595.; Don's Mill., 1. p. 649.
*Synonymes.* E'rable champêtre, *Fr.*; kleiner Ahorn, Feld Ahorn, *Ger.*; Galluzzi, or Pioppo, *Ital.*
*Engravings.* Engl. Bot., t. 304.; Willd. Abbild., t. 213.; our *fig.* 141.; and *fig.* 162. of the leaves, of the natural size, in the plate forming p. 120.

*Spec. Char., &c.* Leaves cordate, with 5 toothed lobes. Racemes erect. Wings of fruit much divaricated. (*Don's Mill.*) A low tree or shrub. Britain. Height 15 ft. to 30 ft., sometimes 40 ft. and upwards. Flowers yellowish green; May and June. Keys brown; ripe in September. Decaying leaves yellow. Naked young wood pale brown.

140. *A*'cer campéstre.

*Varieties.*

♆ A. *c.* 2 *fòliis variegàtis.*—Next to the variegated-leaved variety of *A.* Pseùdo-*Plá*tanus, this seems the handsomest of all the variegated-leaved maples; the leaves preserving, with their variegation, the appearance of health, and the blotches and stripes of white, or whitish yellow, being distinctly marked.

♆ A. *c.* 3 *hebecárpum* Dec. Prod. i. p. 598. *A.* campéstre *Wallr.* in *Litt. Trat. Arch.* i. No. 7; *A.* mólle *Opiz.*—Fruit clothed with velvety pubescence.

A. *c.* 4 *collìnum* Wallr. in *Litt. Dec. Prod.* i. p. 594. *A.* affìne and *A.* macrocárpun. *Opiz.*—Fruit smooth. Lobes of leaves obtuse. Flower smaller. Native of France.

♆ A. *c.* 5 *austrìacum* Tratt. Arch. i. No. 6. (The plate of this tree in Arb. Brit., 1st. edit., vol. v.)—Fruit smooth. Lobes of leaves somewhat acuminated. Flowers larger than those of the species. Native of Austria, Podolia, and Tauria. (*Don's Mill.*) This variety is larger in all its parts than the original species, and is of much freer growth; the main stem rises erect and straight, and sends out its branches regularly on every side, so as to form a sort of cone, almost like a fir. A subvariety of this sort, with variegated leaves, is propagated in the Bollwyller Nursery.

141. *A.* c. hyrcànum.

*Other Varieties.* A. *c. lævigàtum*, leaves very smooth and shining; A. *c. nànum*, habit dwarf; and, perhaps, some others, are in the collection of Messrs. Loddiges. A. *taúricum*, leaves larger and less divided than in the species; and A. *hyrcànum* (*fig.* 141.) with the leaves variously cut, are also in some collections.

Differing from *A.* monspessulànum in having the flowers produced upon

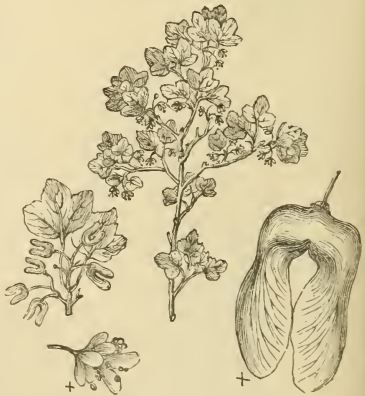
the young shoots; as well as in the racemes of flowers being erect. The wood weighs 61 lb. 9 oz. a cubic foot in a green state, and 51 lb. 15 oz. when perfectly dry. It makes excellent fuel, and the very best charcoal. It is compact, of a fine grain, sometimes beautifully veined, and takes a high polish. It was celebrated among the ancient Romans for tables. The wood of the roots is frequently knotted; and, when that is the case, it is used for the manufacture of snuffboxes, pipes, and other fanciful productions. A dry soil suits this species best, and an open situation. Seeds; which often remain eighteen months in the ground before they vegetate, though a few come up the first spring. The varieties are propagated by layers.

### ☿ 17. *A.* CRE'TICUM *L.* The Cretan Maple.

*Identification.* Lin. Spec., 1497.; Dec. Prod., 1. p. 594.; Don's Mill., 1. p. 649.
*Synonymes.* *A.* heterophýllum *Willd. En.*; *A* sempervirens *L. Mant.*; *A.* obtusifòlium *Sibthorp*; Erable de Crète *Fr.*; Cretischer Ahorn, *Ger.*
*Engravings.* Flor. Græc., t. 361.; Schmidt Arb., t. 15.; the plate of this species in Arb. Brit., 1st edit., vol. v.; our *fig.* 142., from the Flora Græca; and *fig.* 163. of the leaves, of the natural size, in the plate forming p. 121.

*Spec. Char., &c.* Leaves permanent, cuneated at the base, acutely 3-lobed at the top. Lobes entire, or toothleted; lateral ones shortest. Corymbs few-flowered, erect. Fruit smooth, with the wings hardly diverging. (*Don's Mill.*) A diminutive, slow-growing, sub-evergreen tree. Candia, and other islands in the Grecian Archipelago. Height 10 ft. to 30 ft. Introd. 1752. Flowers greenish yellow; May and June. Keys brown; ripe in September.

There is a general resemblance between *A.* créticum, *A.* monspessulànum, and *A.* campéstre; but the first is readily known from both, by its being evergreen, or sub-evergreen, and by its leaves having shorter footstalks, and being less deeply lobed. In a young state, the leaves are often entire or nearly so. It is oftener seen as a shrub than as a tree; and it seems to thrive better in the shade than any other *Acer*. Seeds, layers, or grafting on *A.* campéstre.



142 *A'cer créticum.*

*Other Species of* A'cer.—*A.* barbàtum *Michx.*, given in our first edition, has been omitted, because the plant in the Hort. Soc. Garden has always appeared to us nothing more than *A. platanòides*, and because Torrey and Gray consider it a doubtful species, and probably described by Michaux from "specimens of *A.* sacchàrinum; the only species, so far as we know, which has the sepals bearded inside." (*Tor. and Gray*, i. p. 249.) *A.* opulifòlium given in our first edition as a species, we have now satisfied ourselves, from having been able to examine larger plants, is nothing more than a variety of *A.* Pseùdo-*Plátanus* diminished in all its parts. There are several names of species of *A'cer* in the works of European botanists, the plants of which would require to be procured and studied in a living state: such as A. *granatènse* Bois., a native of Spain; A. *parvifòlium* Tausch; also some natives of the Himalayas; and the following in North America as given by Torrey and Gray; A. *glàbrum* Torr., a shrub of the Rocky Mountains; A. *tripartìtum* Nutt. MSS., a shrub of the Rocky Mountains allied to *A.* glàbrum; A. *grandidentàtum* Nutt. MSS., a shrub or low tree from the Rocky Mountains, supposed to be the same as *A.* barbàtum *Douglas*, mentioned in Hooker's *Flor. Bor. Amer.*, i. p. 112. The names of several other species, not yet introduced, will be found in the first edition of this work

*A'cer oblóngum.* The oblong-*leaved* Maple.
Leaves of the natural size.

A'*cer tatáricum.* The Tartarian, *or entire-leaved,* Maple
Leaves and fruit of the natural size.

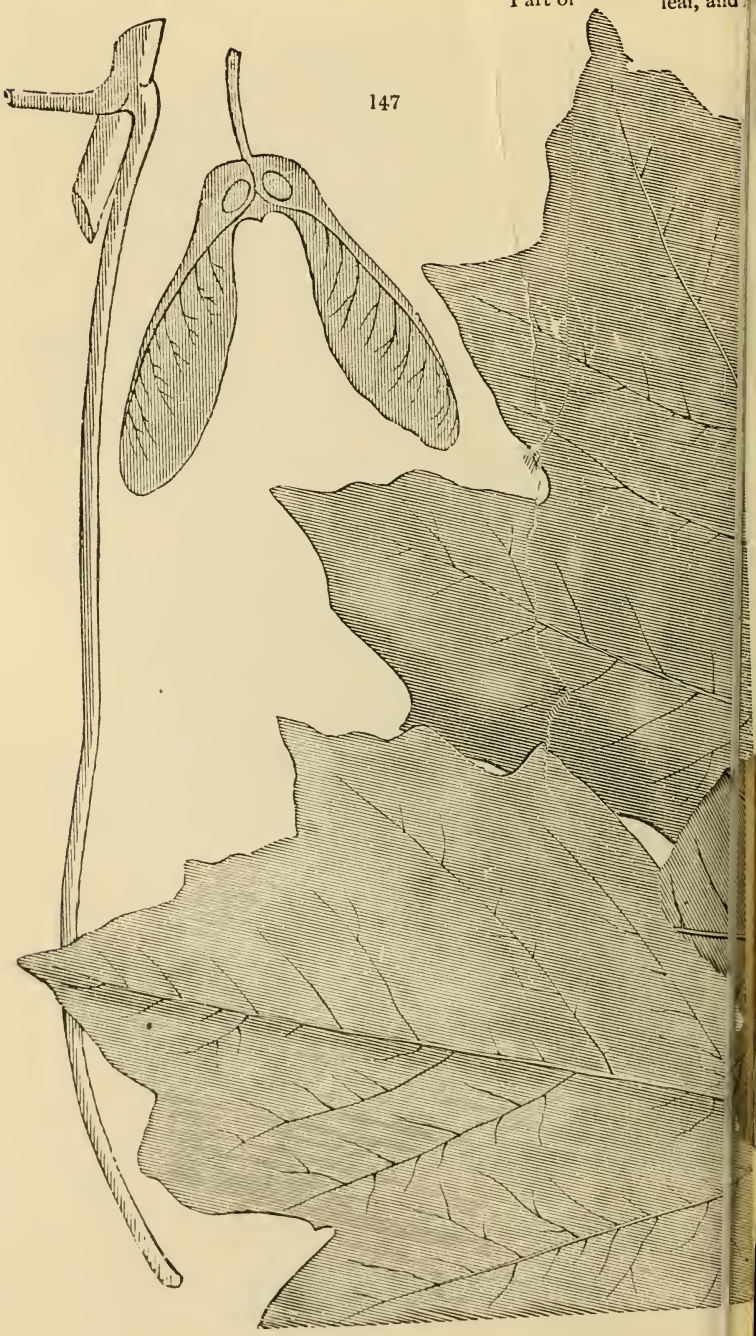
A'cer spicàtum. The spike-*flowered, or mountain*, Maple.
Leaves and fruit of natural size.

A`cer striàtum. The striped-
Leaves of

146

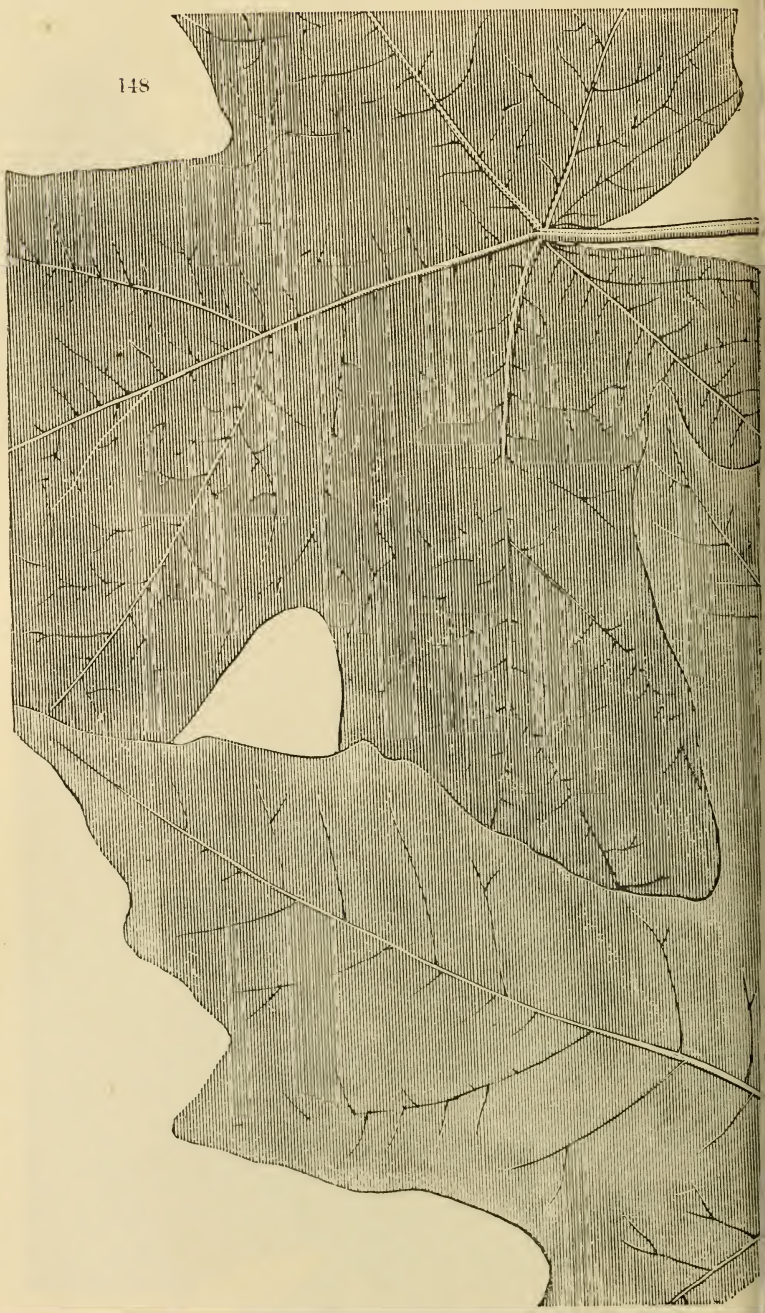
*ark, or Pennsylvanian,* Maple.
ne natural size.

A'cer macrophýllum. The
Part of leaf, and



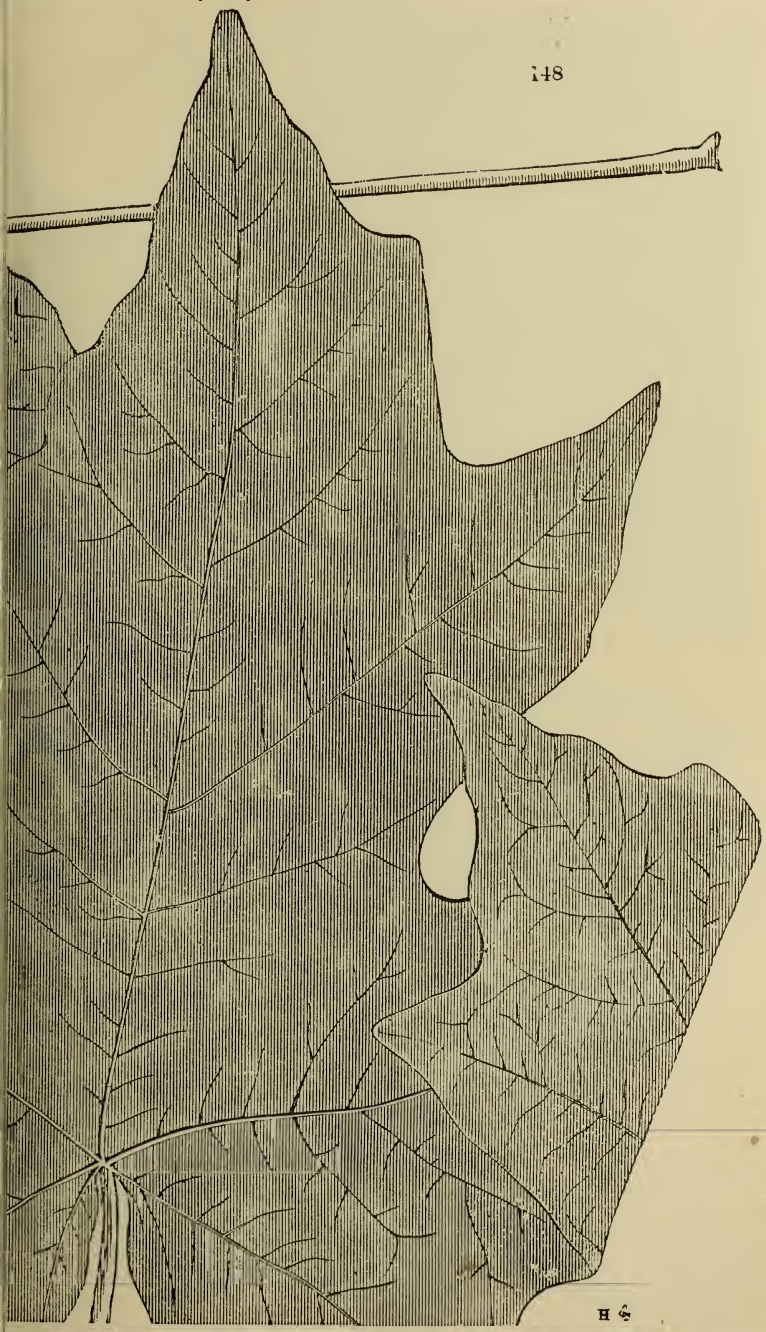
rge-leaved Maple. Plate I.
ıit, of the natural size.

*Acer macrophyllum.* The Smaller leaves, also of the natural size,



ge-leaved Maple. Plate II.

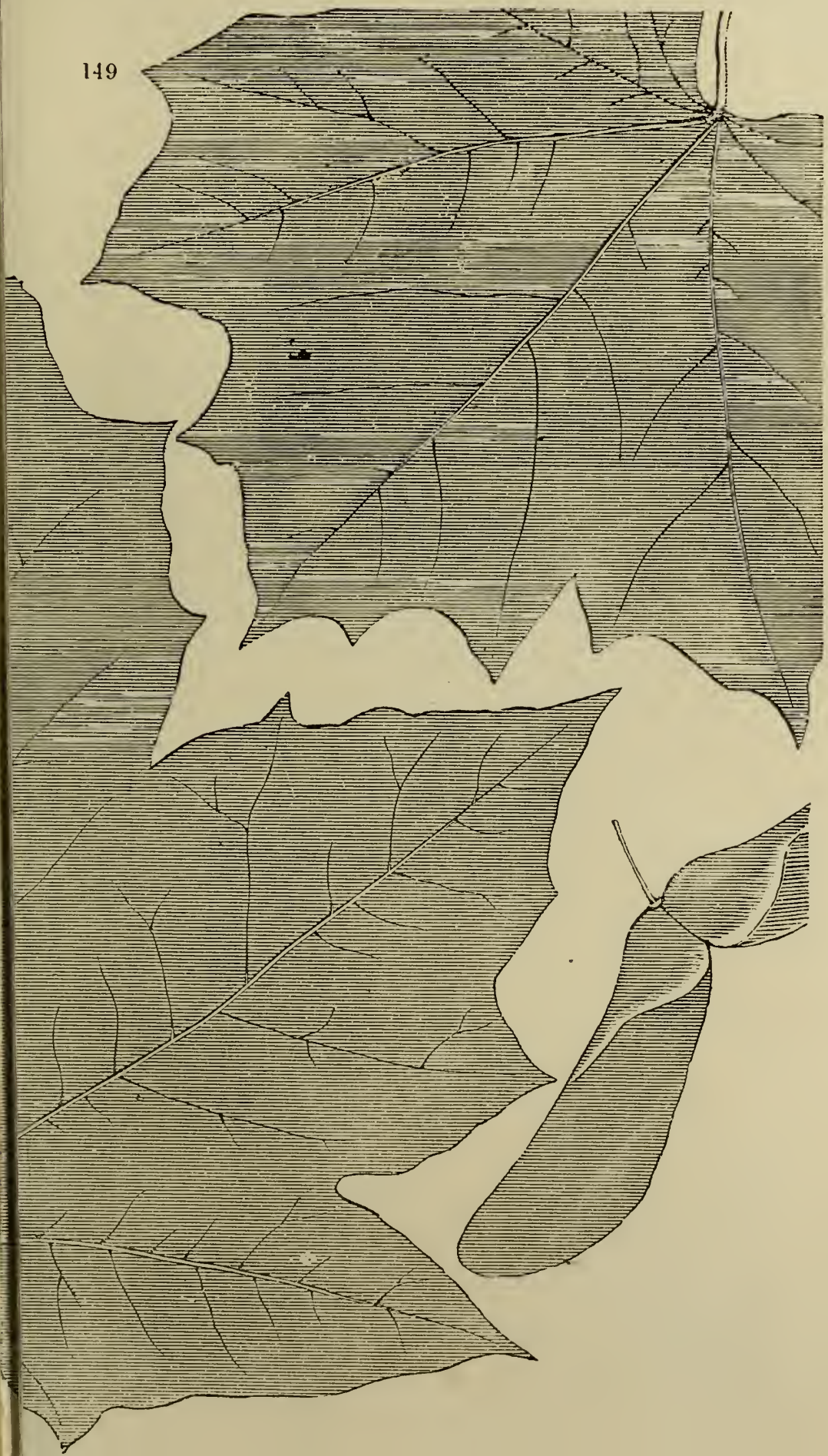
show how much they vary on the same tree.



*Acer platanoïdes.* The Platanus-
Leaves and fruit of

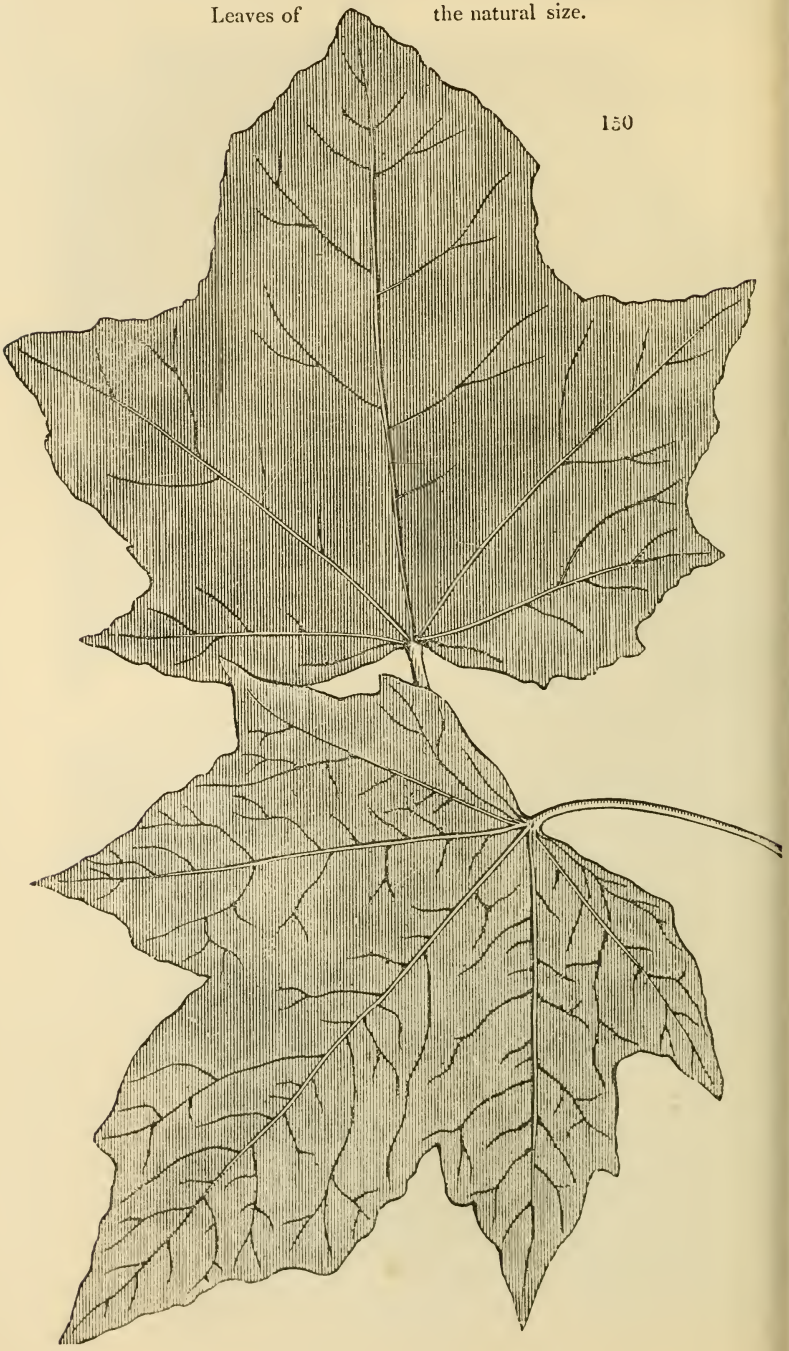
ke, *or Norway*, Maple.
he natural size.

149



A'cer (*platanoïdes*) *Lobèlii*. L'Obel's Maple.
Leaves of the natural size.

150

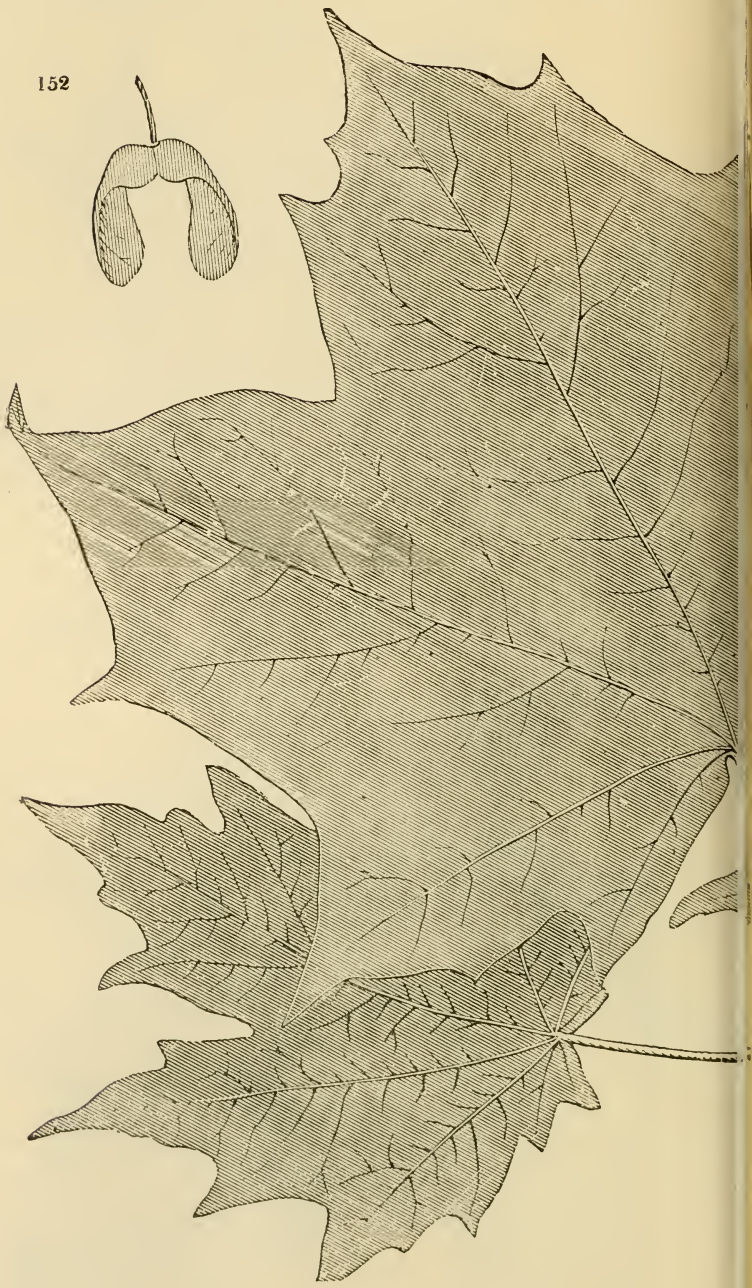


A'cer *platanoïdes laciniàtum.*
The cut-*leaved* Platanus-like, *or Eagle's claw*, Maple.

Leaves of natural size.

151

A'cer saccharinum.
The leaves and fruit



The Sugar Maple.
the natural size.

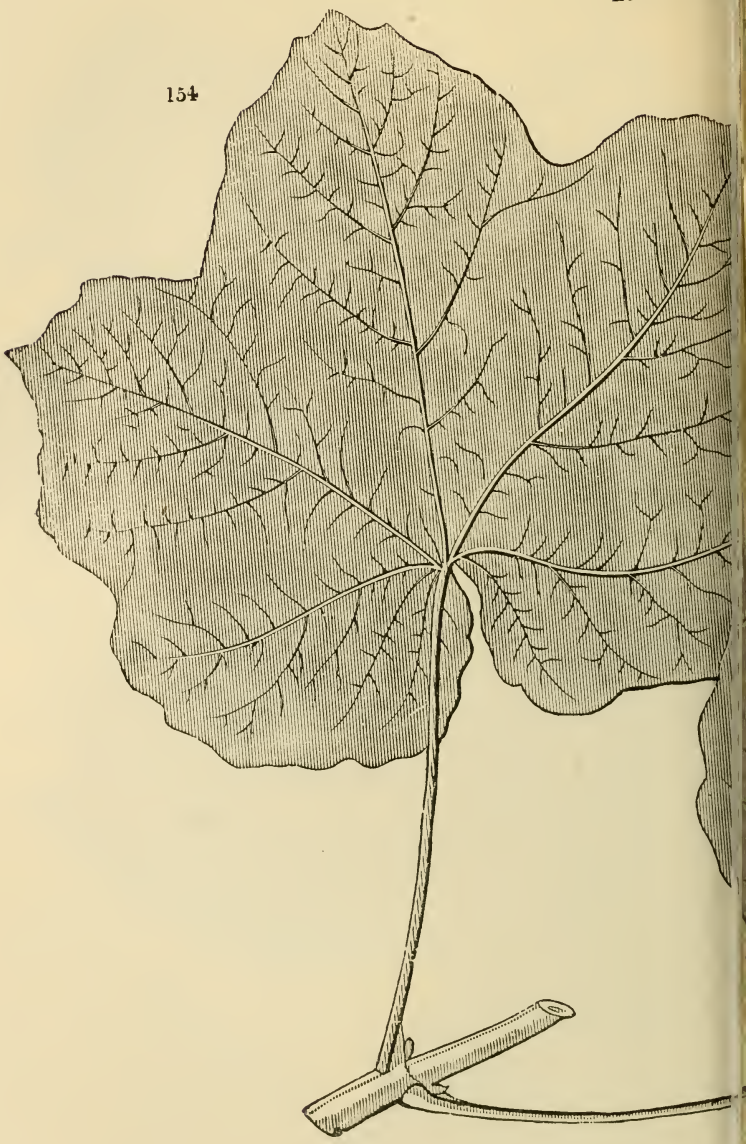
152

A`cer *Pseùdo-Plátanus.* The
Leaves and frui

alse Plane, *or Sycamore*, Maple.
the natural size.

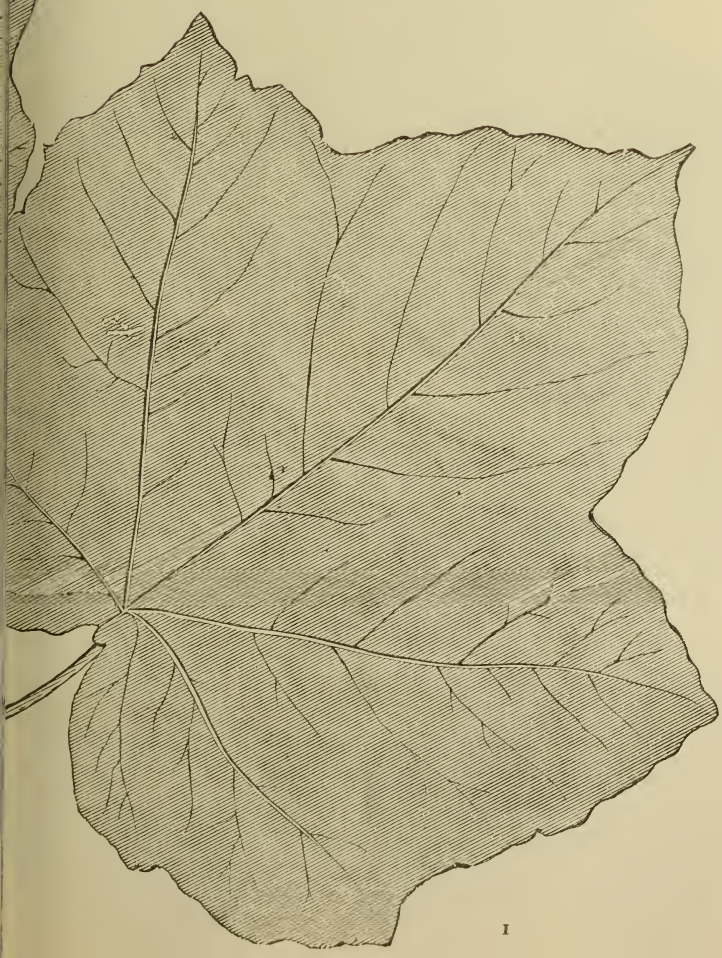
A *cer obtusàtum*. The obtuse-
Leaves of the

154



*ed-leaved,* or Neapolitan, Maple.
ural size.

154



I

A'cer *Pseùdo-Plátanus opulifòlia.*
The Opulus-leaved False Plane, *or Sycamore.*
Leaves and fruit of the natural size.

155

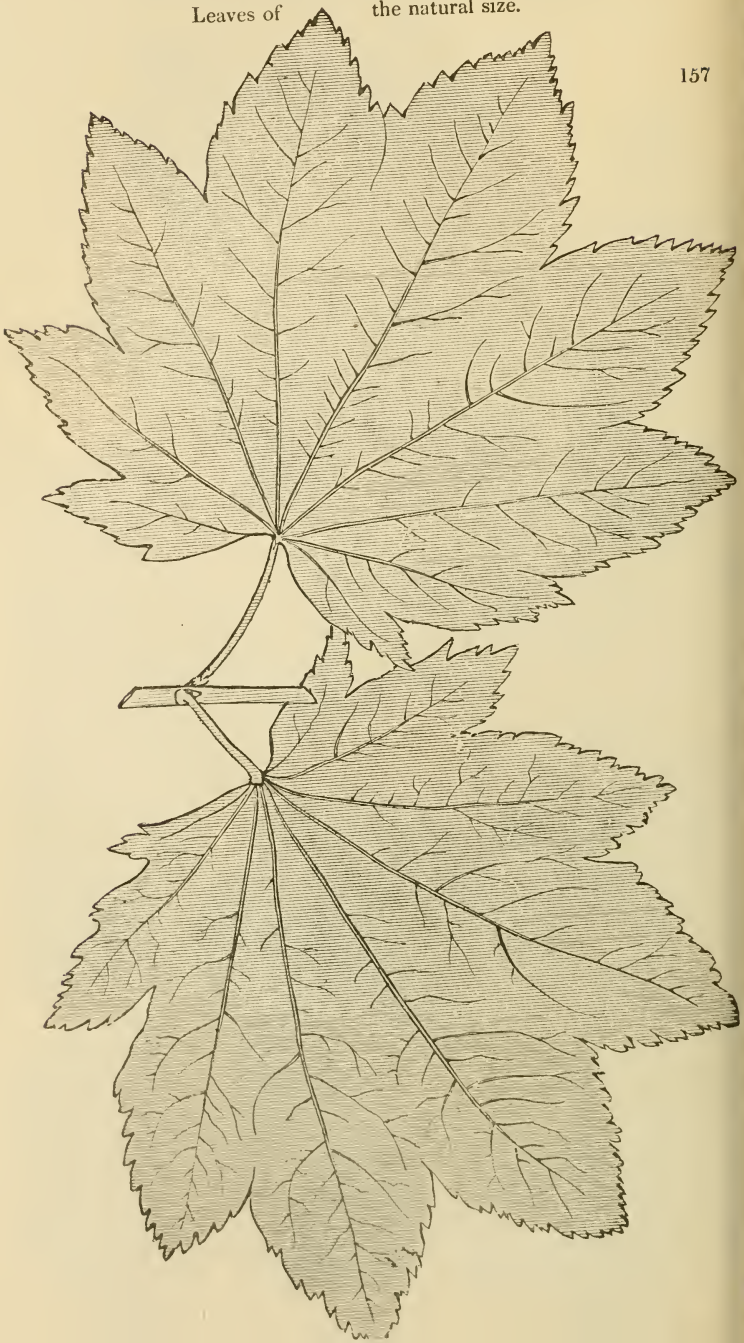
A'cer O'palus The Opal, *or Italian*, Maple.

Leaves of the natural size.

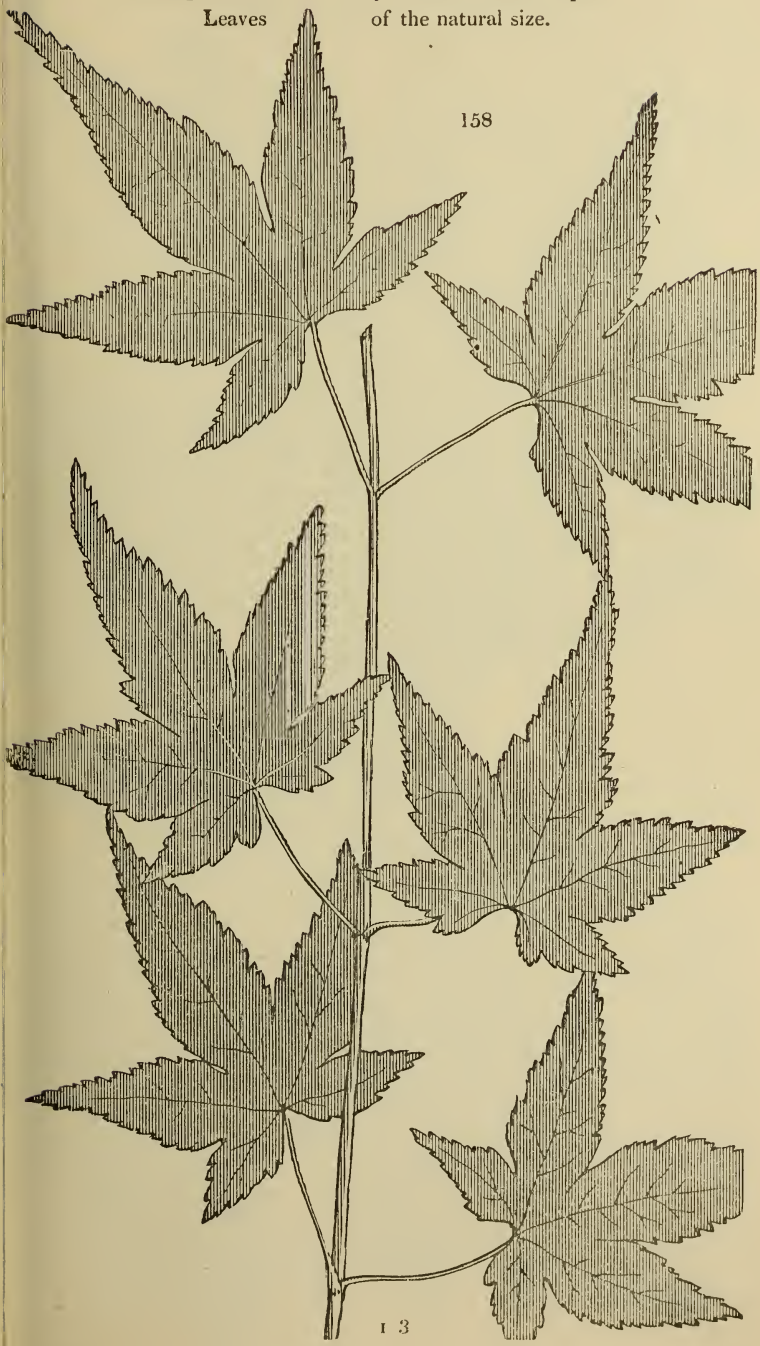
156

A'*cer circinàtum.* The round-*leaved* Maple.
Leaves of the natural size.

157



A'cer *palmàtum*. The palmate-*leaved* Maple.
Leaves of the natural size.



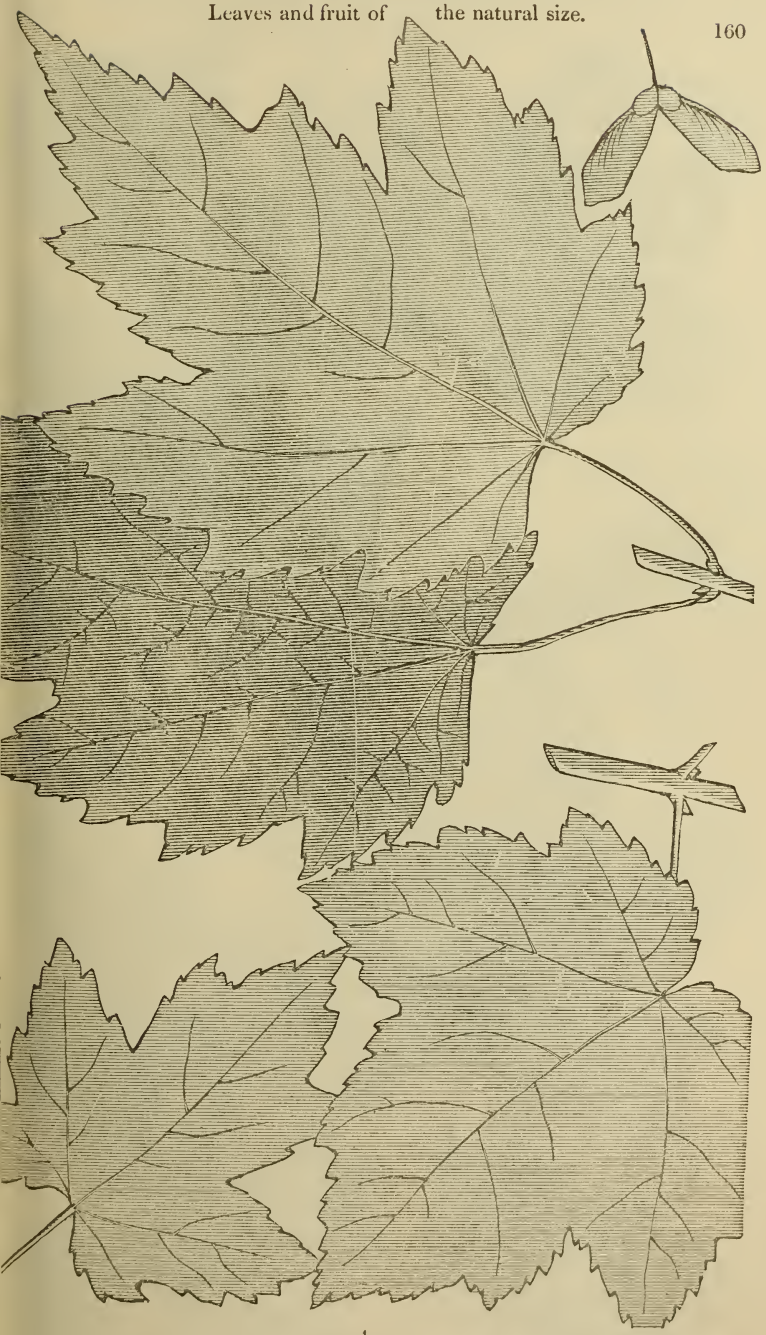
*A'cer eriocárpum.* The woolly-fruited Maple.
Leaves and fruit of the natural size.

159

A'cer *rùbrum*. The red-*flowered* Maple.

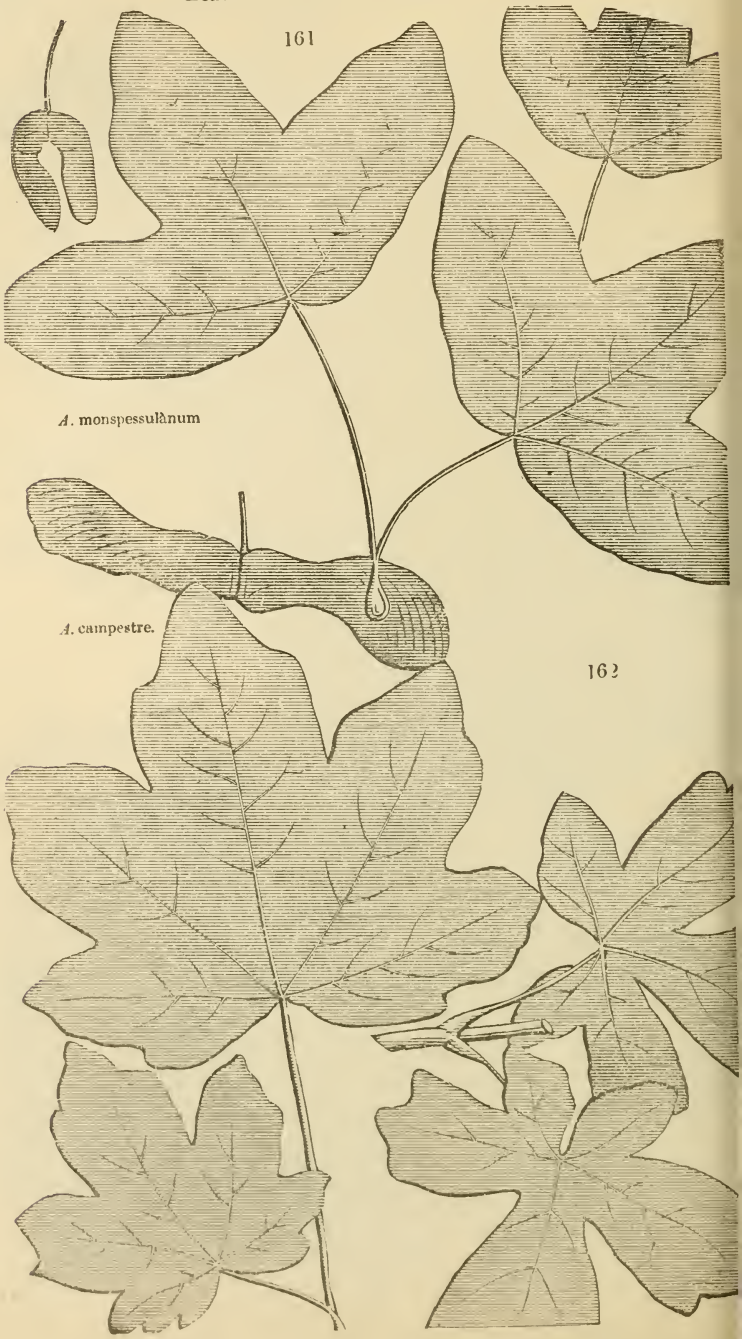
Leaves and fruit of the natural size.

160



A'cer *monspessulànum, and* A. *campéstre.* The Montpelier Maple, and the *common*, or field, Maple.

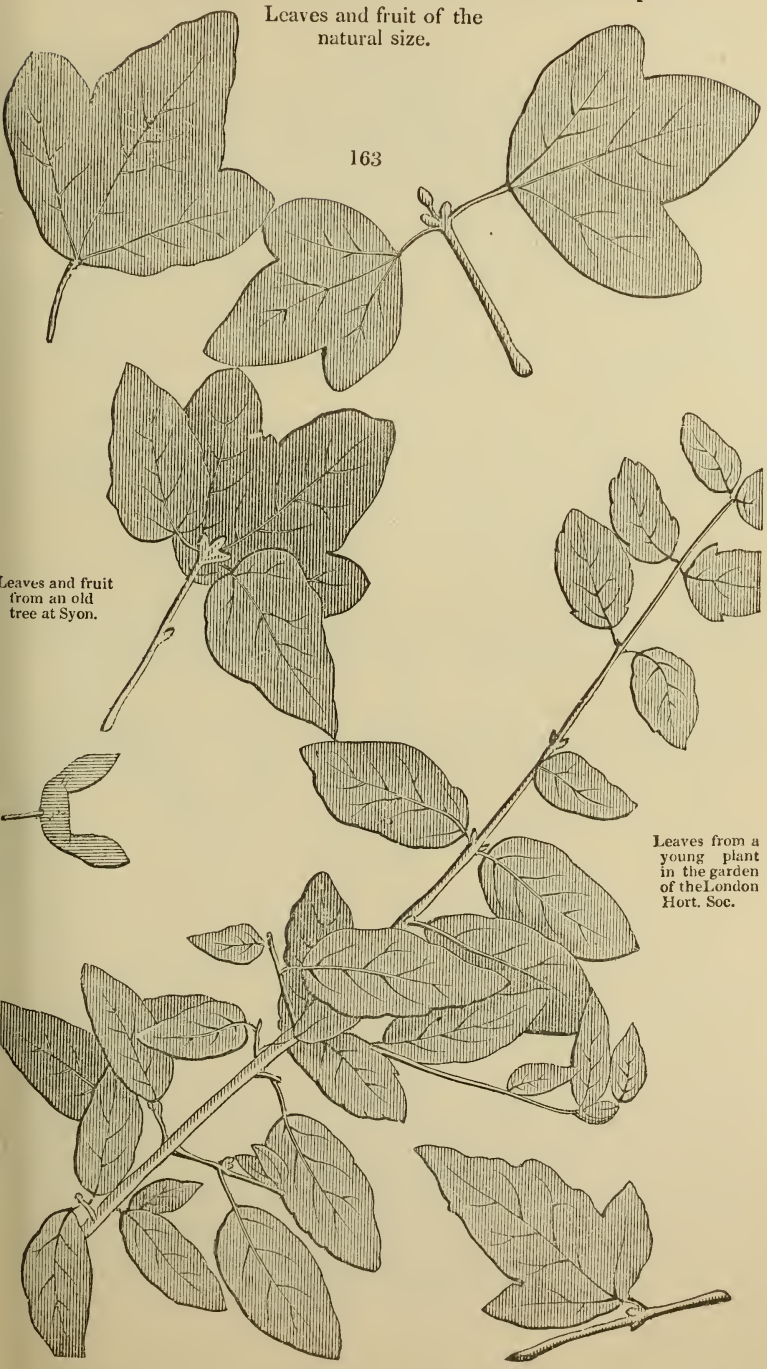
Leaves and fruit of the natural size.



A'cer créticum. The Cretan, *or various-leaved,* Maple.

Leaves and fruit of the natural size.

163



Leaves and fruit from an old tree at Syon.

Leaves from a young plant in the garden of the London Hort. Soc.

## Genus II.

### *NEGU'NDO* Mœnch. The Negundo, *or Box Elder. Lin. Syst.* Diœ'cia Pentándria.

*Identification.* Mœnch Meth., 334.; Dec. Prod., 1. p. 596.; Don's Mill., 1. p. 647. and 651.
*Synonymes.* *A*'cer *Lin.*; *Negúndium* Rafinesque.
*Derivation.* This genus was constituted from *A*'cer *Negúndo* L.; but the meaning of the latter word is unknown. Probably, it may be merely the Illinois name of Gigueres (from *giguer*, to romp, alluding to the tremulous and playful motion of the long pinnated leaves) Latinised.

*Gen. Char. Sexes* diœcious. *Flowers* without a corolla. *Calyx* with 4—5 unequal teeth. *Male flowers* upon thread-shaped pedicels, and disposed in fascicles; *anthers* 4—5, linear, sessile. *Female flowers* disposed in racemes. (*Dec. Prod.*) — Deciduous trees, natives of North America.

*Leaves* compound, opposite, exstipulate, deciduous; impari-pinnate. — There is only one species in British gardens.

#### ♈ 1. *N.* fraxinifo'lium *Nutt.* The Ash-leaved Negundo.

*Identification.* Nutt. Gen. Amer., 1. p. 238.; Dec. Prod., 1. p. 596.; Don's Mill., 1. p. 651.
*Synonymes.* *A*'cer *Negúndo* L., *Mich. Arb.*; *N.* acerôides *Mœnch* and *Torr. & Gray*; *Negúndium* americânum *Rafin.*; the Ash-leaved Maple, the Black Ash; E'rable à Feuilles de Frêne, *Fr.*; E'rable à Gignières, *Illinois*; Eschenblättriger Ahorn, *Ger.*; Acero americano, *Ital.*
*Engravings.* Mich. Arb., 2. t. 16.; Schmidt Arb., 1. t. 12.; Wats. Dend., t. 172.; the plate of this species in Arb. Brit., 1st edit., vol. v.; and our *fig.* 164. from Schmidt.

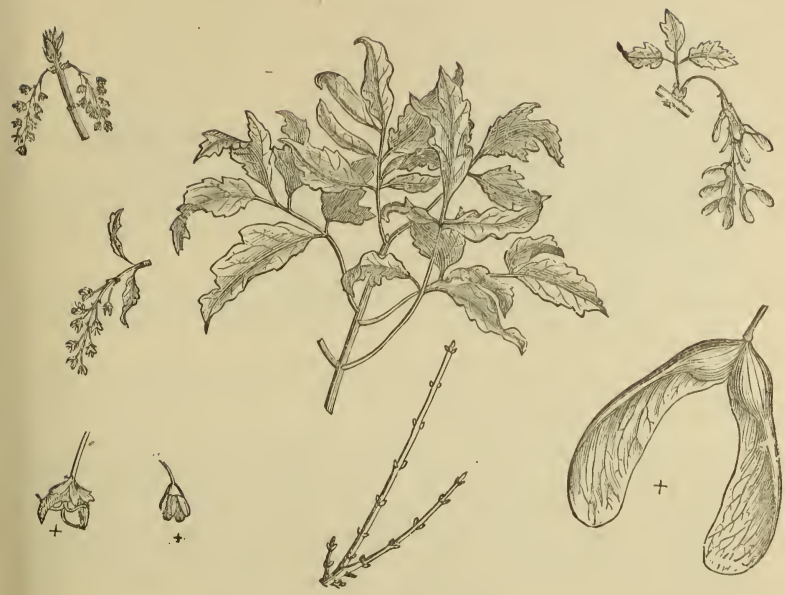
164. *Negúndo fraxinifôlium.*

*Spec. Char., &c.* Leaves of from 3 to 5 leaflets, the opposite ones coarsely and sparingly toothed, the odd one oftener 3-lobed than simple. (*Dec. Prod.*) A deciduous tree, of the middle size. Canada to Carolina. Height 15 ft. to 30 ft.; in England 30 ft. to 40 ft. Introduced in 1688. Flowers yellowish green, appearing with the leaves; April. Keys brown; ripe in August. Decaying leaves of a rich yellow. Naked young wood smooth, and of a fine pea green. The tree in the Hort. Soc. Garden is a male; but there is a female plant in the collection of W. Borrer, Esq., Henfield.

*Varieties.*

♈ N. f. 2 *crispum* G. Don. (The plate in Arb. Brit., 1st edit., vol. v.; and our *fig.* 165.) — Leaves variously cut and curled. The plant of this variety in the arboretum of the Hort. Soc. is a male: the inflorescence consists of pendulous panicles of flowers, that are green, with some redness from the colour of the anthers; and each is placed upon a slender peduncle of about 1 in. long.

♈ N. f. 3 *violàceum* Booth. — Young shoots covered with a violet bloom. This appearance is not uncommon in the young shoots of different species of *A*'cer as well as in *Negúndo*.



165. *Negúndo fraxinifòlium crispum.*

A rapid-growing tree; very ornamental, from its compound leaves, and the fine pea-green of its young shoots; arriving at maturity in 15—20 years. American seeds, which ought to be sown as soon as possible, or layers, in any common soil.

*Other Species of* Negúndo.—*N* califórnicum *Tor. & Gray*, found by Douglas, is supposed to be a new species; but neither fruit, nor full-grown leaves, are described.

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## Order XIV. ÆSCULA'CEÆ.

*Synonymes.* Castanàceæ *Link*; Hippocastàneæ *Dec.*

*Ord. Char.* *Calyx* campanulate, 5-lobed. *Ovary* roundish, trigonal. *Seeds* large and globose; albumen wanting. *Embryo* curved, inverted; with fleshy, thick, gibbous cotyledons, not produced above ground in germination. *Plumule* large, 2-leaved. — Deciduous trees, natives of North America and Asia.

*Leaves* compound, opposite, exstipulate, deciduous; leaflets 5—7, serrated. *Flowers* terminal, in racemes, somewhat panicled. — All the known plants of this order cross-fecundate freely, and by most botanists they are included in one genus; but so numerous are the garden varieties, that we have thought it more convenient to follow those authors who separate the species into two genera. These are *Æ'*sculus and Pàv*ia*, which are thus contradistinguished: —

*Æ'*sculus *L.* Capsule echinated.
Pa'v*ia* Boerh. Capsule smooth.

## Genus I.

*Æ'*SCULUS *L.* The Horsechestnut. *Lin. Syst.* Heptándria Monogýnia.

*Identification.* Lin. Gen., No. 462.; Dec. Prod., 1. p. 597.; Don's Mill., 1. p. 562.
*Synonymes.* Hippocástanum *Tourn.*; Marronier d'Inde, *Fr.*; Rosskastanie, *Ger.*
*Derivation.* The word *Æ'*sculus, derived from *esca*, nourishment, is applied by Pliny to a species of oak, which had an eatable acorn. The word Hippocástanum, from *hippos* a horse, and *castanea*, a chestnut, is said by some to have been given to this tree ironically, the nuts, though they have the appearance of sweet chestnuts, being only fit for horses; and by others, because it is said the nuts are used in Turkey, for curing horses of pulmonary diseases.

*Gen. Char.* *Calyx* campanulate. *Petals* 4—5, expanded, with an ovate border. *Stamens* with the filaments recurved inwardly. *Capsules* echinated. *Leaflets* sessile, or almost sessile. (*Don's Mill.*) — Deciduous trees, natives of Asia and North America.

*Leaves* palmately divided, with stalked leaflets, generally rough. *Capsule* rough. *Buds* generally covered with resin. — Two species and several varieties are in British gardens.

The common horsechestnut is invariably propagated by the nuts, which are sown when newly gathered, or in the following spring; and in either case they will come up the succeeding summer. All the other sorts, as being varieties of the species, are propagated by budding or grafting. Soil deep sandy loam. Only the first three sorts described below can be considered as true horsechestnuts; the remainder, to which some other names might be added, we consider as hybrids between *Æ'*sculus and some kind of Pàvia, most probably P. flàva.

### ♆ 1. *Æ.* Hippoca'stanum *L.* The *common* Horsechestnut.

*Identification.* Lin. Sp., 488.; Dec. Prod., 1. p. 597.; and Don's Mill., 1. p. 652.
*Synonymes.* Hippocástanum vulgàre *Tourn.*; Marronier d'Inde, *Fr.*; gemeine Rosskastanie, *Ger.*; Marrone d'India, *Ital.*
*Engravings.* Woodv. Med. Bot., t. 128.; the plate of this species in the Arb. Brit., 1st edit., vol. v.; and our *fig.* 166.

*Spec. Char., &c.* Leaflets 7, obovatèly cuneated, acute, and toothed. A large deciduous tree. Asia and North America. Height 50 ft. to 60 ft. Introduced in 1629. Flowers white, tinged with red; May. Fruit brown; ripe in October. Decaying leaves dark brown. Naked young wood brown. Buds long, large, greenish brown, covered with resin.

*Varieties.*

- ♆ *Æ. H.* 2 *flòre plèno.*—Recorded in nurserymen's catalogues, but not common.
- ♆ *Æ. H.* 3 *aúreo-variegàtum.* — The leaves are blotched with yellow, but they have a ragged and unhealthy appearance, and are by no means ornamental.
- ♆ *Æ. H.* 4 *argénteo-variegàtum.* — Leaves blotched with white.
- ♆ *Æ. H.* 5 *incìsum* Booth. *Æ. asplenifòlia Hort.* — Leaflets cut into shreds.

*Other Varieties.* In Booth's *Catalogue* are the names *Æ.* H. crìspum, nìgrum, præ'cox, striàtum, tortuòsum, &c., but none of these, nor any other variety which we have seen, is worth culture.

A tree of the largest size, with an erect trunk, and a pyramidal head. The leaves are large, of a deep green colour, and singularly interesting and beautiful when they are first developed. When enfolded in the bud, they are covered with pubescence, which falls off as the leaves expand. The growth, both of the tree and of the leaves, is very rapid; both shoots and leaves being sometimes perfected in three weeks from the time of foliation. The wood weighs, when newly cut, 60 lb. 4 oz. per cubic foot; and, when dry, 35 lb. 7 oz.; losing, by drying, a sixteenth part of its bulk. It is soft, and

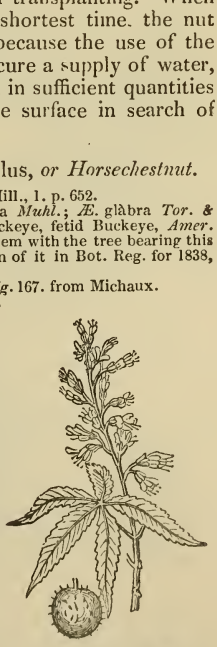
166. Æ'sculus Hippocástanum.

unfit for use where great strength, and durability in the open air, are required; nevertheless, there are many purposes for which it is applicable when sawn up into boards; such as for flooring, linings to carts, packing-cases, &c. The nuts may be used when burned as a kind of ley, or substitute for soap. The nuts, if wanted for seed, should be gathered up as soon as they drop, and either sown or mixed with earth; because, if they are left exposed to the air, they will lose their germinating properties in a month. Some nurserymen cause the nuts to germinate before sowing them, in order to have an opportunity of pinching off the extremity of the radicle; by which means the plants are prevented from forming a taproot; or, at least, if a taproot be formed, it is of a much weaker description than it otherwise would be, and the number of lateral fibres is increased; all which is favourable for transplanting. When the tree is intended to attain the largest size, in the shortest time, the nut ought to be sown where the tree is finally to remain; because the use of the taproot is mainly to descend deep into the soil, to procure a supply of water, which, in dry soils and seasons, can never be obtained in sufficient quantities by the lateral roots, which extend themselves near the surface in search of nourishment and air.

♀ 2. *Æ.* (H.) OHIOE'NSIS *Michx.* The Ohio Æsculus, *or Horsechestnut.*

*Identification.* Mich. Arb., 3. p. 242.; Dec. Prod., 1. p. 597.; Don's Mill., 1. p. 652.
*Synonymes.* *Æ.* ohioénsis *Lindl.*; ? *Æ.* pállida *Willd.*; *Æ.* echinàta *Muhl.*; *Æ.* glàbra *Tor. & Gray*; Pàvia ohioénsis *Michx.*; Pàvia glàbra *Spach*; Ohio Buckeye, fetid Buckeye, *Amer.* All these synonymes appear to us very doubtful, when we compare them with the tree bearing this name in the Hort. Soc. Gardens, and with Dr. Lindley's description of it in Bot. Reg. for 1838, t. 51.
*Engravings.* Michx. Arb., 2. t. 92.; Bot. Reg., 1838, t. 51.; and our *fig.* 167. from Michaux.

*Spec. Char., &c.* Stamens nearly twice the length of the (yellowish white) corolla; petals 4, spreading, a little unequal, the claw scarcely the length of the campanulate calyx; thyrsus racemose, loosely flowered; leaflets 5, oval or oblong, acuminate, fine and unequally serrate, glabrous. (*Tor. and Gray*, i. p. 251.) A deciduous tree of the middle size. Pennsylvania and Virginia. Height in America 10 ft. to 30 ft.; in the climate of London apparently the same as the common horsechestnut. Introduced in ? 1820. Flowers white, yellow, and red; May and June. Fruit brown; ripe in October. Bark rough, fetid. Branches of the thyrsus of flowers short, 4—6-flowered; the flowers mostly unilateral, small (not half the size of those of the common horsechestnut). Fruit prickly, resembling that of the cultivated horsechestnut, but scarcely half the size. (*Tor. and Gray*, i. p. 251.)



167. Æ. (H.) ohioénsis

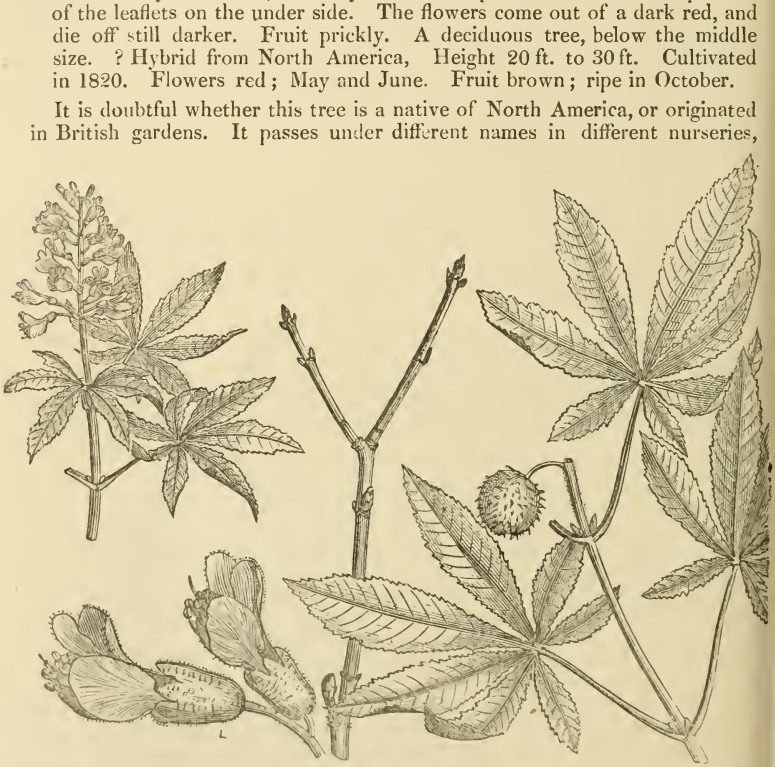
According to Michaux, the American horsechestnut is commonly a bush or low tree, from 10 ft. to 12 ft. in height; but it is sometimes 30 or 35 feet high, trunk 12 or 15 inches in diameter. He found it only on the banks of the Ohio; but Torrey and Gray give as its habitats the western parts of Pennsylvania, Virginia, Ohio, Kentucky. The tree in the Hort. Soc. Garden is of equally vigorous growth with the common horsechestnut; the leaves are larger, and of a bright green: on the supposition that this is the *Æ.* ohioénsis of *Michx.* and *Tor. & Gray*, we have no doubt in our own mind that it is only a variety of the common horsechestnut, Dr. Lindley, however, is of a different opinion, considering it as a distinct species. (See *Bot. Reg.*, 1838, t. 51.)

ǂ 3. *Æ.* (H.) RUBICU'NDA *Lois.* The reddish-*flowered* Æsculus, *or Horse chestnut.*

*Identification.* Loiseleur Herb. Amat.; Dec. Prod., 1. p. 597.; Don's Mill., 1. p. 652.
*Synonymes.* *Æ.* cárnea *Hort.*, and *Lindl. Bot. Reg.*; *Æ.* ròsea *Hort.*; *Æ.* coccínea *Hort.*; *Æ.* Hippocástanum var. rubicúndum *Schubert*; *Æ.* Watsòniàna Spach; Marronier rubicund, *Fr.*; scharlachrothe Rosskastanie, *Ger.*; Whitley's fine scarlet.
*Engravings.* Herb. Amat, t. 367.; Hayne Abbild., t. 22.; Bot. Reg., t. 1056., as *Æ.* cárnea; Wats. Dendr., t. 121., as *Æ.* cárnea; the plate of this species in Arb. Brit., 1st edit., vol. v.; and our *fig.* 168.

*Spec. Char., &c.* Petals 4, with the claws shorter than the calyx. The flowers are scarlet, and very ornamental; the leaves of a deeper green than those of any other sort, and they have a red spot at the base of the petioles of the leaflets on the under side. The flowers come out of a dark red, and die off still darker. Fruit prickly. A deciduous tree, below the middle size. ? Hybrid from North America, Height 20 ft. to 30 ft. Cultivated in 1820. Flowers red; May and June. Fruit brown; ripe in October.

It is doubtful whether this tree is a native of North America, or originated in British gardens. It passes under different names in different nurseries,



168. *Æ*'sculus (Hippocástanum) rubicúnda.

as will be seen by our list of synonymes, and may be considered as differing little, if at all, from *Æ.* cárnea *Lindl.* It is distinguished from Pàv*ia* rùbra by its larger and rougher leaves; and from *Æ.* Hippocástanum by the leaves

being fuller and more uneven on the surface, and of a deeper green. The tree is also smaller, and of much less vigorous growth than the common horsechestnut. It is, without doubt, the most ornamental sort of the genus.

*Variety.*

ϒ *Æ.* (*H.*) 2 *r. ròsea. Æ'*sculus ròsea *Hort.*—This variety differs from *Æ.* (H.) rubicúnda, in having the leaflets without a red spot at the base of the petioles. The flowers come out of a pale red, and die off about the same shade as the flowers of *Æ.* (H.) rubicúnda are when they first appear.

*Other Varieties.* There are several names in gardens, and in nurserymen's catalogues, which appear to belong to *Æ.* (H.) rubicúnda, but how far they are worth keeping distinct, we are very doubtful. *Whitley's new scarlet*, of which there is an imported tree in the Fulham Nursery, is said to have flowers of a darker scarlet than any of the above-named varieties; and, if so, it may be recorded as *Æ.* (H.) r. 3 Whitlèii. *Æ.* (*H.*) *americàna* of the same nursery belongs also to *Æ.* rubicúnda.

ϒ 4. *Æ.* GLA'BRA *Willd.* The smooth-*leaved* Æsculus, *or Horsechestnut.*

*Identification.* Willd. Enum., p. 405.; Dec. Prod., 1. p. 597.; Don's Mill., 1. p. 652.
*Engravings.* Hayne Abbild., t. 24.; and our *figs.* 169, 170.

*Spec. Char., &c.* Claws of the petals of about the length of the calyx. Leaflets of a pale green, very smooth. Flowers of a greenish yellow. A deciduous low tree. North America. Height 20 ft. to 30 ft. Introduced in 1812. Flowers yellow; June. Fruit brown; ripe in October.

This sort is very distinct; but it is evidently not the *Æ'*sculus glàbra of Torrey and Gray, but probably a variety of the *Æ'*sculus flàva of these

169. *Æ'*sculus glàbra.

authors, with rough fruit. The whole plant is comparatively glabrous, and even the fruit partakes of that quality. The tree is of less vigorous growth than *Æ.* rubicúnda; and the shoots take a more upright direction. It appears to lose its leaves sooner than most of the other sorts.

170. *Æ'*sculus glàbra.

ϒ 5. *Æ.* (G.) PA'LLIDA *Willd.* The pale-*flowered* Æsculus, *or Horsechestnut.*

*Identification.* Willd. Enum., p. 406.; Hayne Dend., p. 44.; Dec. Prod., 1. p. 597.; Don's Mill., 1. p. 652.
*Synonyme.* Gelbliche Rosskastanie, *Ger.*
*Engravings.* Hayne Abbild., t. 25.; and our *fig.* 171.

*Spec. Char., &c.* Petals with the claws shorter than the calyx. Stamens twice as long as the corolla. A deciduous low tree. Originated in gardens. Height 20 ft. to 30 ft. Cultivated in 1812. Flowers pale yellow; May and June. Fruit brown; ripe in October.

This sort so closely resembles *Æ.* glàbra, as to leave no doubt in our mind of its being a variety of that species. It is of somewhat more robust growth, and the leaves are, perhaps, not quite so smooth.

171. Æ'sculus glàbra pàllida.

*Other Kinds of Æ'sculus* are enumerated in some nurserymen's catalogues; but we know of none worth notice, except those already recorded.

## Genus II.

PA'VIA Boerh. The Pavia, *Buckeye, or Smooth-fruited Horsechestnut Tree. Lin. Syst.* Heptándria Monogýnia.

*Identification.* Boerh. Lugd., t. 260.; Dec. Prod., 1. p. 598.; Don's Mill., 1. p. 652.
*Derivation.* In honour of *Peter Paw*, a Dutch botanist, once professor of botany at Leyden. Buckeye has reference to the conspicuousness of the hilum of the seed, when taken out of the husk.

*Gen. Char. Calyx* tubular. *Petals* 4, erect, narrow. *Stamens* straight. *Capsules* unarmed. (*Don's Mill.*) — Middle-sized deciduous trees or shrubs, natives of North America; distinguishable from the horsechestnuts by the smoothness of their fruit, and the comparative smallness of their flowers, which have their petals erect and narrower.

*Leaves* palmate, with 5—7 leaflets, smooth. *Flowers* small, with erect and narrow petals. *Buds* blunt, not covered with resin. — There are three species, and several varieties or hybrids, in British gardens.

Distinguished from the common horsechestnuts, by being smaller and smoother in all their parts. There are probably only three aboriginal species; but there are several beautiful garden varieties, or hybrids. Culture the same as for the common horsechestnut.

### ♃ 1. P. ru'bra *Lam.* The red-*flowered* Pavia.

*Identification.* Lam. Illust.; Dec. Prod., 1. p. 598.; Don's Mill., 1. p. 653.
*Synonymes.* Æ'sculus Pàv*ia* Lin. and Tor. & Gray; *Æ.* Pàv*ia* var. α rùbra *Hayne Dend.* p. 44.; Pàv*ia* parviflòra *Hort.*; small Buckeye, *Amer.*; Marronier Pavie, or Pavie à Fleurs rouges, *Fr.*; rothe Rosskastanie, *Ger.*; Marrone di Paw, *Ital.*
*Engravings.* Lam. Illust., t. 273., Hayne Abbild., t. 21.; Wats. Dend., t. 120.; Krause, t. 55.; the plate of the tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 173.

*Spec. Char., &c.* Corolla of 4 petals, that are longer than the stamens. Leaflets 5, elliptic-oblong, tapered to both ends, and smooth, as is the petiole; axils of the nerves hairy on the under surface of the leaf. (*Dec. Prod.*) A slender-growing tree. Virginia and Carolina, on mountains. Height 10 ft. to 20 ft. Introduced in 1711. Flowers brownish scarlet; May and June. Fruit brown; ripe in October. Decaying leaves brown. Naked young wood reddish brown.

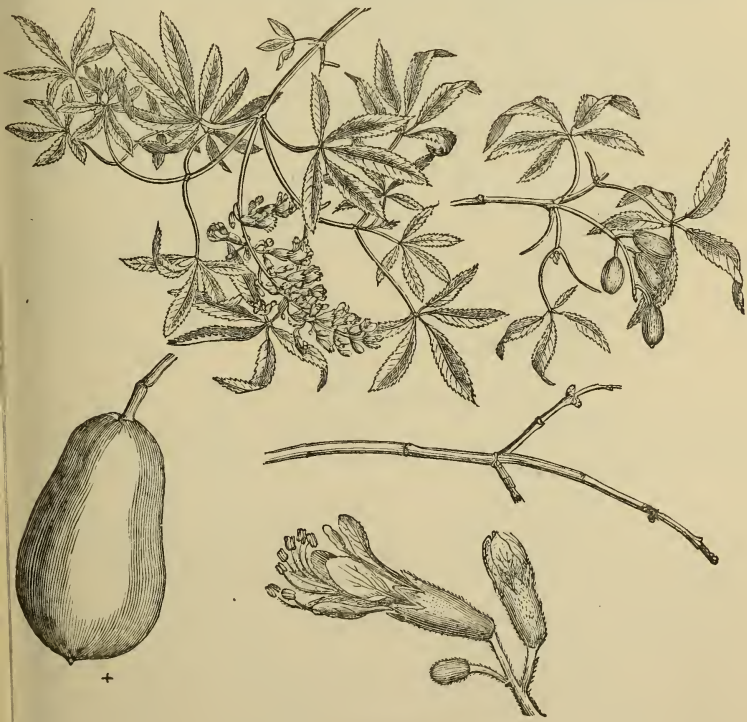
*Varieties.*

ℓ *P. r.* 2 *argùta* G. Don. (B. Reg., t. 993.; our *fig.* 172.) — A handsome small tree, with dark brownish red flowers, differing little from those of P. rùbra. Introduced in ? 1820.

ℓ *P. r.* 3 *sublaciniata* Wats. Dend. Brit. t. 120. *Æ.* P. serràta *Hort.* — Leaflets acutely serrated: in other respects it differs little from the species.

ℓ *P. r.* 4 *hùmilis.* P. hùmilis *G. Don*; and *Æ'*sculus hùmilis *Lodd.* (Bot. Reg., t. 1018; and our *fig.* 173.) — A diminutive, weak, straggling form of the species, probably obtained from some sport, and which, on its own root, is only a re-

172. Pàvia rùbra argùta.



173. Pàvia rùbra hùmilis.

cumbent bush, from 2 ft. to 3 ft. in height; but which, when grafted

on the common horsechestnut, forms the very beautiful pendulous low tree of which there is a plate in the *Arb. Brit.*, 1st edit., vol. v. In addition to these varieties, there are the three forms which are enumerated below.

In its native country this species varies in magnitude from a low rambling shrub to a tree of 20 ft. or more in height. In England P. rùbra is in cultivation in various forms: as a tree, in which character it has, at Syon (see our plate in the *Arb. Brit.*, 1st edit., vol. v.), attained the height of 26 ft.; as a pendulous tree of 12 or 14 feet in height (see our plate in the *Arb. Brit.*,

174. Pàvia rùbra.

1st edit., vol. v., under the name of P. r. péndula); and as a trailing shrub, under the name of P. hùmilis, in the London Hort. Soc. Garden, and in the arboretum of Messrs. Loddiges.

♃ 2. P. FLA'VA *Dec.* The yellow-*flowered* Pavia.

*Identification.* Dec. Prod., 1. p. 598.; Don's Mill., 1. p. 653.
*Synonymes.* Æ'sculus flàva *Ait.*, *Hayne*, and *Tor. & Gray*; Æ. lùtea *Wangh.*; Pàvia lùtea *Poir.*; the sweet Buckeye, big Buckeye, *Amer.*; the yellow Pavia; the yellow Horsechestnut.
*Engravings.* Wats. Dend. Brit., t. 163.; the plate in Arb. Brit., 1st edit., vol. v.; and our *fig.* 175.

*Spec. Char., &c.* Petioles pubescent, flattish towards the tip. Leaflets 5—7, pubescent beneath, and above upon the nerves. (*Dec. Prod.*) A deciduous tree of the middle size. Virginia and Georgia, in fertile valleys. Height 30 ft. to 80 ft. in America; 30 ft. to 40 ft. in England. Introduced in 1764. Flowers yellow; April and May. Fruit brown; ripe in October. Decaying leaves yellow, tinged with brown. Naked young wood yellowish brown.

A more vigorous and rigid-growing tree than P. rubra, with the branches

175. Pàvia flàva.

upright; whereas in P. rùbra they are spreading, slender, and pendulous. Leaves paler than in P. rùbra. To thrive, it, like all the other Æsculàceæ, requires a deep rich soil. Propagated by budding, because the colour of the flowers is found to vary much in plants raised from seed.

♀ 3. P. (F.) NEGLE'CTA *G. Don.* The neglected Pavia.

*Identification.* Loud. Hort. Brit., p. 143.; Don's Mill., 1. p. 653.; Swt. Hort. Brit., p. 83.
*Synonyme.* Æ'sculus neglècta *Lindl.* in *Bot. Reg.*
*Engravings.* Bot. Reg., t. 1009.; and our *fig.* 176.

176. Pàvia (flàva) neglècta.

*Spec. Char., &c.* Leaflets 5, lanceolate, serrulated, tapering to the base, flat, rather plicate, smooth beneath, but pilose in the axis of the veins. Calyx campanulate, obtusely 5-toothed, about the length of the pedicel. Stamens rather longer than the corolla. Superior petal veined. (*Don's Mill.*) A deciduous tree. North America. Height 20 ft. to 30 ft. Introduced in 1823. Flowers yellow and red; May and June, a week earlier than P. flàva. Fruit brown; ripe in October. Leaves with rufous down on the veins on the upper side. Flowers pale yellow, veined with red, disposed in thyrsoid racemes. Capsules unarmed, but the ovary tomentose.

A tree resembling Pàv*ia* flàva but smaller. The plant in the Hòrt. Soc. Garden was purchased from M. Catros of Bordeaux, under the name of *Æ.* ohioénsis. In the *Bot Reg.* it is said to be most nearly related to *Æ.* (Pàv*ia*) flàva, but to differ from it in the flowers appearing a week or 10 days earlier, and in the leaflets being more glabrous, with rufous down on the veins on the upper side, and with hairs in the axils of the veins on the under surface.

♃ 4. P. MACROCA'RPA *Hort.* The long-fruited Pavia.

*Synonyme.* *Æ*'sculus Pàv*ia* macrocárpa *Lodd. Cat.*, 1830.
*Engravings.* The plate in Arb. Brit., vol. v.; and our *fig.* 177.

*Spec. Char., &c.* Leaves glabrous on both sides. Leaflets ovate-lanceolate. A deciduous tree under the middle size. A garden hybrid between

177. Pàv*ia* macrocárpa.

*Æ*'sculus and Pàv*ia* ? rùbra. Height 20 ft. to 30 ft. Cultivated in 1820. Flowers pale red and yellow, nearly as large as the common horsechestnut; May and June. Fruit brown; ripe in October.

The leaves are large, glabrous on the upper surface, and shining. The branches are spreading and loose; and the whole tree has an open graceful appearance, quite different from that compactness of form and rigidity of branches which belong to most of the tree species and varieties both of *Æ'*sculus and Pàv*ia*.

### ⚘ 5. P. DI'SCOLOR *Swt.* The two-coloured-*flowered* Pavia.

*Identification.* Swt. Hort. Brit., p. 83.; Don's Mill., p. 653.
*Synonymes.* *Æ'*sculus díscolor *Ph.* and *Bot. Reg.*; *Æ'*sculus Pàv*ia* β díscolor *Tor. & Gray.*
*Engravings* Bot. Reg., t. 310.; and our *fig.* 178.

*Spec. Char., &c.* Leaflets 5, acuminate at both ends, tomentose beneath, unequally serrulated. Raceme thyrsoid, many-flowered. Corolla of four conniving petals, with their claws the length of the calyx. Stamens 7, shorter than the corolla. (*Don's Mill.*) A deciduous tree-like shrub. Virginia and Georgia, in fertile valleys and on mountains. Height 3 ft. to 10 ft. Introduced in 1812. Flowers variegated with white, yellow, and purple; May and June. Fruit brown; ripe in October. Decaying leaves yellowish brown. Naked young wood of a brownish stone-colour.

The whole plant, including the young wood, is covered with pubescence. The flowers are large, showy, continuing a long time expanding, and numerous though they are but sparingly succeeded by fruit. When the plant is raised from seed, it is remarkable for its thick, fleshy, carrot-like roots, which, in free soil, penetrate perpendicularly to the depth of 8 or 10 feet before they branch. Unless when grafted on *Æ.* Hippocástanum, it is seldom seen above 4 or 5 feet in height; but it is a very free flowerer, and, considered as a shrub, is in May, when it is in flower, one of the most ornamental that the British arboretum affords.

178. Pàv*ia* díscolor.

### ⚘ 6. P. MACROSTA`CHYA *Lois.* The long-racemed Pavia.

*Identification.* Lois. Herb. Amat.; Dec. Prod., 1. p. 598.; Don's Mill., 1. p. 652.
*Synonymes.* *Æ'*sculus parviflòra *Walt.*, and *Torr. & Gray*; *Æ* macrostàchya *Mx.* and *Hayne*; Pàv*ia* álba *Poir.*; Pàv*ia* edùlis *Poit. Arb. Fr.* t. 88.; Macrothýrsus díscolor *Spach*; Pavier à longs E'pis, Pavier nain, *Fr.*; langährige Rosskastanie, *Ger.*
*Engravings.* Lois. Herb. Amat., t. 212.; Hayne Abbild., t. 26.; and our *fig.* 179.

*Spec. Char., &c.* Stamens much longer than the corolla. Racemes very long. Root stoloniferous. Flowers white. (*Dec. Prod.*) A deciduous shrub, with numerous radicled shoots. South Carolina and Georgia. Height in America 2 ft. to 4 ft.; in the climate of London 10 ft. to 15 ft. Introduced in 1820. Flowers white, with long projecting stamens, which give the spike a fine fringed appearance; July and August. Fruit brown; ripe in October.

179. Pàv*ia* macrostàchya

The shoots are slender, spreading, and rooting at the joints where they happen to rest on the soil, with ascendent extremities. The tree comes into flower about a month or six weeks later than the other *Æ*sculàceæ, and continues flowering,

in the case of large plants on moist soil, for three months or longer, forming one of the greatest floral ornaments of the shrubbery, at a season when very few trees or shrubs are in flower. The fruit, which is small, seldom ripens in England: but in America it is said to be eaten, boiled or roasted; and M. Poiteau, accordingly, has included this species of Pàv*ia* in his list of fruit trees. Layers; or seeds, when they can be procured, and which ought to be sown as soon as possible after they are ripe.

*Other Kinds of Pàv*ia.—*Pàv*ia *califórnica* (*Æ.* califórnica *Nutt.*) has been described by Torrey and Gray, but is not yet introduced. *P. Lyon*ii is in the Hort. Soc. Garden, but has not yet flowered there. We have omitted in this edition P. hýbrida, described by DeCandolle as a truly intermediate plant between P. rùbra and P. flàva, with yellow, white, and purple flowers; because the only plant which we have seen bearing this name, that in the Hort. Soc. Garden, has the flowers yellow, and appears merely a very slight variety of P. flàva. In nurserymen's catalogues there are several names which we have not noticed; for the truth is, that the different kinds of *Æ*'sculus and Pàv*ia* cross-fecundate so freely, and seedlings vary so much, that there is no limit to the number of varieties that might be produced. The great error (because it creates so much confusion in the nomenclature) consists in giving these varieties to the world as species.

It is almost unnecessary to observe, that all the most valuable varieties, of both *Æ*'sculus and Pàv*ia*, are best perpetuated by budding or grafting, and that collectors ought always to see that the plants they purchase have been worked. Pàv*ia* rùbra as a tree, P. díscolor either as a shrub or grafted standard high, and P. macrostàchya as a shrub, ought to be in every collection, whether small or large. Pàv*ia* hùmilis, when grafted standard high on the common horsechestnut, forms an ornament at once singular and beautiful. As the horsechestnut is to be found in most plantations, those who are curious in the species and varieties might graft them on the upper branches of old trees; or young trees might be headed down, and one kind grafted on each.

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## Order XV. SAPINDA'CEÆ.

*Ord. Char.* *Flowers* polygamous.—*Males* with the calyx more or less deeply 4—5-parted. *Petals* 4—5, or occasionally absent, alternate with the sepals. *Disk* fleshy. *Stamens* 8—10, inserted into the disk.—*Hermaphrodite flowers* with the calyx, petals, disk, and stamens as in the males. *Ovary* 3-celled. *Cotyledons* incumbent. *Plumule* 2-leaved. (*Lindl.*)—A tree, a native of China.

*Leaves* compound, alternate, stipulate, deciduous. *Flowers* terminal, in racemose panicles, small, white or yellow.—There is only one hardy species belonging to this order in British gardens, namely, Kölreutèr*ia* paniculàta *Laxm.*

### Genus I.

KÖLREUTE'R*IA* Laxm. The Kolreuteria. *Lin. Syst.* Octándria Monogýnia.

*Identification.* Laxm. Acad. Petr., 16. p. 561.; L'Hérit. Sert., 18. t. 19.; Willd. Spec. Pl., 330.; Dec. Prod., 1. p. 616.; Don's Mill., 1. p. 672.
*Synonymes.* Sapíndus sp. *Lin. fil.*; Cölreuteria, *Ital.*
*Derivation.* In honour of *John Theophilus Kölreuter*, once professor of natural history at Carlsruhe, and celebrated for his researches on the pollen of plants.

*Gen. Char., &c.* *Calyx* of 5 sepals. *Petals* 4, each with 2 scales at the base. *Capsule* 3-celled, inflated. *Seeds* ovate-globose, the seed-coat penetrating into the seed, and occupying in the place of an axis the centre of the embryo, which is spirally convoluted. (*Dec. Prod.*)

*Leaves* impari-pinnate, of many pairs of leaflets, that are ovate and coarsely toothed. *Flowers* yellow, in panicles. — A deciduous tree.

ϟ 1. K. PANICULA'TA *Laxm.* The panicled-*flowering* Kolreuteria.

*Identification.* Laxm. Acad. Petr., 16. p. 561.; Dec. Prod., 1. p. 616.; Don's Mill., 1. p. 672.
*Synonymes.* Sapindus chinênsis *Lin. fil. Supp.* p. 221.; K. paullinoïdes L'Hérit. Sert.; Savonnier paniculé, *Fr.*; rispentragende Kölreuterie, *Ger.*
*Engravings.* N. Du Ham., 1. t. 36.; Bot. Reg., t. 320.; and the plate of the tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 180.

*Spec. Char., &c.* Leaves impari-pinnate, with ovate leaflets, coarsely toothed. Flowers polygamous. A deciduous tree of the middle size. North of China Height 20 ft. to 40 ft. in the climate of London. Introduced in 1763. Flowers yellow, in terminal, racemose, spreading panicles; July and August. Fruit a bladdery capsule, whitish brown; ripe in October. Decaying leaves deep yellow. Naked young wood brown.

It is very hardy; the hermaphrodite plants not unfrequently ripening seeds in the neighbourhood of London. It has not only a very fine appearance

180. Kölreutèria paniculàta.

when in flower, but also in autumn, when the tree is covered with its large bladdery capsules, and the leaves change to a deep yellow, which they do before they fall off. It is of the easiest culture in any common soil, and is readily propagated either by seeds or cuttings of the root or branches. In the London nurseries it is generally propagated by seed.

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## ORDER XVI. VITA'CEÆ.

ORD. CHAR. *Calyx* small. *Petals* 4 or 5. *Stamens* equal in number to the petals; filaments distinct, or slightly cohering at the base. *Anthers* versatile. *Ovarium* 2-celled. *Fruit* a pulpy berry. *Seeds* 4 or 5, fewer by

abortion; embryo erect; albumen hard. — Climbing shrubs, with tumid separable joints.

*Leaves* simple or compound, opposite or alternate, stipulate, deciduous; the lower ones opposite, the upper alternate. *Flowers* axillary, racemose, sometimes by abortion changing to tendrils, which are generally opposite to the leaves; small, green. — Shrubs, trailing and climbing, deciduous, and including the grape vine, which may be considered as the type of the order. The genera which contain hardy species are three, which are thus contradistinguished: —

*Vi'tis.* Style wanting. Petals 5.
Ampelo'psis. Style 1. Petals 5.
*Ci'ssus.* Style 1. Petals 4.

## Genus I.

### *VI'TIS L.* The Grape Vine. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Lin. Gen., 284.; Dec. Prod., 1. p. 633.; Don's Mill., 1. p. 695.
*Synonymes.* Giud, *Celtic*; Vid, *Span.*; Vigne, *Fr.*; Vite, *Ital.*; Wein, *Ger.*

*Gen. Char.* *Flowers* hermaphrodite, diœcious or triœcious. *Calyx* commonly 5-toothed. *Petals* 5, cohering at the top, separating at the base, and deciduous. *Stamens* 5. (*Dec. Prod.*) — Climbing tendriled shrubs, deciduous; natives of Asia and North America.

*Leaves* simple, alternate, stipulate, lobed or serrated. *Flowers* in thyrsoid racemes, small, and of a greenish yellow. — There are several species in British gardens, the principal of which is the grape vine.

#### ♃ 1. *V.* vini'fera *L.* The wine-bearing Vine.

*Identification.* Lin. Spec., 293; Dec. Prod., 1. p. 633.; Don's Mill., 1. p. 695.
*Synonymes.* Vigne, *Fr.*; gemeiner Weinstock, *Ger.*; Vite da Vino, *Ital.*
*Engravings.* Duh. Arb. Fr., 2. t. 16.; Jacq. Ic., 1. p. 53.; and our *fig.* 181

*Spec. Char., &c.* Leaves lobed, toothed, sinuated, or serrated, naked or downy. (*Dec. Prod.*) A deciduous tendriled climber. Syria. Stem 20 ft. to 50 ft. Cultivated in 1648, or probably from the time of the Romans. Flowers greenish yellow, scented; June and July. Fruit green, red, or black; ripe in October. Decaying leaves yellow or red. Naked young wood yellowish brown.

181. Vitis vinifera.

*Varieties.* The grape vine has been in cultivation from the remotest period of history, in the warmest parts of the temperate zones of the Old World. The varieties have been described at length by Du Hamel in France, Don Roxas de Clementi in Spain, and Sickler in Germany. The varieties of the vine as a fruit shrub, and all that relates to their propagation and culture, will be found treated of in our *Encyclopædia of Gardening*; and we shall

here only notice those which we think deserving of cultivation, as ornamental and fragrant-flowered climbers.

℞ V. *v.* 2 *fòliis incànis.* Miller's Grape, or Miller's black Cluster Grape. — Leaves almost entire, small, woolly, and whitish. Fruit round, small, in compact bunches, black. This variety is selected on account of the whiteness of its leaves.

℞ V. *v.* 3 *fòliis rubescéntibus.* The Claret Grape; Tenturier, *Fr.* (*N. Du Ham.*, var. 75., not Clairette *Du Ham.*, var. 12.) — The leaves are larger than those of the preceding variety, and more lobed and notched: in the autumn, before they die off, they change to a deep claret colour, in which state they are highly ornamental.

182. *V*itis vinifera *a*piifòlia.

℞ V. *v.* 4 *apiifòlia laciniòsa* L. The Parsley-leaved Grape Vine; Ciotat, *Fr.*; Vite d'Egitto, *Ital.* (*fig.* 182.) — The leaves are beautifully laciniated, middle-sized, and the fruit black. A very handsome climbing shrub which has been in cultivation for its fruit since 1648.

### ℞ 2. *V.* LABRU'SCA *L.* The wild Vine, *or Fox Grape.*

*Identification.* Lin. Spec., 293.; Dec. Prod., 1. p. 634.; Don's Mill., 1. p. 711.; Tor. and Gray, 1. p. 244.
*Synonymes.* *V.* taurìna *Walt.*; filziger Wein, *Ger.*; Abrostine, *Ital.*
*Engravings.* Plum. Icon., t. 259. fig. 1.; Jacq. Schœn., t. 426.; and our *fig.* 183.

*Spec. Char., &c.* Sexes diœcious or polygamous. Leaves heart-shaped, rather 3-lobed, acutely toothed beneath, and the peduncles tomentose and rather rusty. (*Dec. Prod.*) Canada to Georgia. Climbing stem 10 ft. to 30 ft. Introduced in 1656. Flowers greenish yellow; June and July. Fruit red or black; ripe in October. Decaying leaves brown or black.

183. *V*itis Labrúsca.

*Varieties.* Several varieties, with red, white, or black fruit, are known in the gardens of North America, from which wine is made; such as the Isabella, Schuylkill or Alexander's, the Catawba, and Bland's Grape, which have doubtless been produced from seeds of this species. (*Tor. and Gray.*)

Leaves 4 in. to 6 in. or more in diameter, often distinctly 3-lobed, short, mucronate, and densely tomentose beneath. Berries 6—7 lines in diameter, globose, usually very dark purple when ripe, but sometimes amber-coloured or greenish white, of a strong musky flavour, and filled with a tough pulp. (*Ibid.*)

### ℞ 3. *V.* ÆSTIVA'LIS *Michx.* The Summer Vine, *or Grape Vine.*

*Identification.* Michx. Fl. Bor. Amer., 2. p. 230.; Dec. Prod., 1. p. 634.; Don's Mill., 1. p. 711.; Tor. and Gray, 1. p. 244.
*Synonymes.* *V.* vinifera americàna *Marsh.*; *V.* intermèdia *Muhl.*; and *V.* palmàta *Vahl.*
*Engravings.* Jac. Hort. Schœn., t. 425.; and our *fig.* 184.

*Spec. Char., &c.* Sexes diœcious or polygamous. Leaves broadly heart-shaped, with from 3 to 5 lobes; the under surface of the young ones invested with a cottony down; of the adult ones, smooth. Racemes fertile, oblong. Berries small. (*Dec. Prod.*) A tendriled climber. Connecticut to Florida. Stem 20 ft. to 30 ft. Introduced in 1656. Flowers greenish yellow; June. Fruit dark blue; ripe in October.

184. *V*itis æstivàlis.

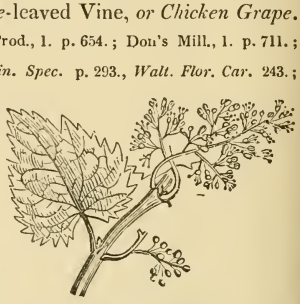
Leaves 4 in. to 7 in. wide, often deeply lobed, with the sinuses rounded;

the lower surface, particularly in the young state, clothed with a reddish cobweb-like pubescence; when old, somewhat glabrous. Berries 3—4 lines in diameter, deep blue, of a pleasant flavour; ripe in October. (*Tor. and Gray.*) Perhaps only a variety of the preceding species. *V. l*abruscoïdes *Muhl.* is also probably a synonyme or a variety of that species.

♃ 4. *V.* CORDIFO'LIA *Michx.* The heart-*shape*-leaved Vine, *or Chicken Grape.*

*Identification.* Michx. Fl. Bor. Amer., 2. p. 231.; Dec. Prod., 1. p. 654.; Don's Mill., 1. p. 711.; Tor. and Gray, 1. p. 244.
*Synonymes.* *V.* incisa *Jacq. Schœn.* t. 427.; *V.* vulpina *Lin. Spec.* p. 293., *Walt. Flor. Car.* 243.; Winter Grape; Frost Grape.
*Engravings.* Jacq. Schœn, t. 247.; and our *fig.* 185.

*Spec. Char., &c.* Sexes diœcious or polygamous. Leaves heart-shaped, acuminate, toothed in the mode of incisions, smooth on both surfaces. Racemes loosely many-flowered. Berries small, greenish, ripened late. (*Dec. Prod.*) A tendriled climber. Canada to Florida, in thickets along rivers. Stem 10 ft. to 20 ft. Introduced in 1806. Flowers greenish yellow; June. Fruit greenish; ripe in November.


185. *V*itis cordifòlia.

Leaves thin, 3 in. to 6 in. in diameter, often slightly 3-lobed, and rarely sinuated. Berries nearly black when mature, about a quarter of an inch in diameter, ripening late in autumn; acid, but tolerably well flavoured after having been touched by frost. (*Tor. and Gray.*)

♃ 5. *V.* RIPA'RIA *Michx.* The river-side, *or sweet-scented,* Vine.

*Identification.* Michx. Flor. Bor. Amer., 2. p. 821.; Dec. Prod., 1. p. 635.; Don's Mill., 1. p. 711.
*Synonymes.* *V.* odoratissima *Donn Hort. Cant.*, and *Lodd. Cat.*; Vigne de Battures, *Amer.*
*Engravings.* Bot. Mag., t. 2429.; Dend. Brit., 1. p. 13.; and our *fig.* 186.

*Spec. Char., &c.* Leaves heart-shaped, shallowly 3-cleft, toothed in the mode of incisions and unequally. Footstalk, and the margin of the nerves, pubescent. Racemes loose. Fruit small. (*Dec. Prod.*) A tendriled climber. Canada to Virginia. Stem 20 ft. to 30 ft. Introduced in 1806. Flowers greenish yellow, with the fragrance of mignonette; June and July. Fruit dark purple, or amber; ripe in October.

186. *V*itis ripària.

Leaves 4 in. to 6 in. in diameter, thin; teeth very coarse, acuminate. Berry 3—4 lines in diameter, dark purple, or amber colour, when ripe. (*Tor. and Gray.*)

♃ 6. *V.* VULPI'NA *L.* The Fox Grape, *or Bullet Grape.*

*Identification.* Willd. Sp., 1. 1181.; Walt. Car., p. 243.; Tor. and Gray, 1. p. 245.
*Synonymes.* *V.* rotundifòlia *Michx.*, *Pursh*, *Dec.*, *Don's Mill.*, and *Arb. Brit.* 1st edit.; Muscadine Grape.
*Engraving.* Our *fig.* 187.

*Spec. Char., &c.* Branches minutely verrucose. Leaves cordate, shining on both surfaces, somewhat 3-lobed, coarsely toothed, the teeth not acuminate. Racemes composed of numerous capitate umbels. Berries large. (*Tor. and Gray.*) A tendriled climber. Virginia to Florida. Stem 20 ft. to 30 ft. Introduced in 1806. Flowers greenish yellow; June and July. Fruit deep blue; ripe in October.

The stem of this species has a smooth bark, and climbs to the summit of some of the highest trees. Leaves 2—3 in. in diameter; the lower surface more shining than the upper; sinus deep, but rather acute. Fruit 7—8 lines

in diameter, covered with a coriaceous integument, the flower not unpleasant. This, according to Torrey and Gray, appears to be the original *V.* vulpìna of Linnæus.

*Other Species of* Vìtis. — The American species have been considerably reduced in number by Messrs. Torrey and Gray; but it appears to us, that the reduction might have been carried still farther. Some species are described as natives of the Himalayas, and 130 varieties are noticed by Rafinesque in his *Monograph of American Vines* (see *Gard. Mag.*, vol. viii. p. 248.); but they are not yet known in this country. Indeed, from the appearance of the above-described species in the Hort. Soc. Garden, we are much inclined to think they are only varieties of the same species. They certainly do not differ more from each other than the known varieties of the common cultivated vine.

187. *V*itis vulpina.

## GENUS II.

### AMPELO'PSIS *Michx.* THE AMPELOPSIS. *Lin. Syst.* Pentándria Monogýnia

*Identification.* Michx. Fl. Bor. Amer., 1. p. 159.; Dec. Prod., 1. p. 632.; Don's Mill., 1. p. 694.
*Synonymes.* *V*itis sp. and *C*issus sp.; Ampelosside, *Ital.*
*Derivation.* *Ampelos*, a vine, and *opsis*, resemblance; similarity in the habits of the species.

*Gen. Char.* *Calyx* almost entire. *Petals* 5, falling off separately. *Stigma* capitate. *Ovary* not immersed in a disk, including 2—4 ovules. (*Dec. Prod.*)

*Leaves* compound, alternate, exstipulate, deciduous; palmate, pinnate, or bipinnate. *Flowers* small. — Tendriled climbers, natives of North America. The species in British gardens are two, of the easiest culture in any common soil; and one of them, A. *h*ederàcea, is among the most ornamental of hardy climbers.

§ 1. A. *H*EDERA'CEA *Michx.* The Ivy-like Ampelopsis, *or Five-leaved Ivy.*

*Identification.* Michx. Fl. Bor. Amer., 1. p. 160.; Dec. Prod., 1. p. 633.; Don's Mill., 1. p. 694.
*Synonymes.* *H*ēdera quinquefòlia *Linn. Spec.* 292.; *V*itis quinquefòlia *Lam. Ill.* No. 2815.; *C*issus *h*ederàcea *Pk Fl. Amer. Sept.* 1. p. 170.; *C*issus quinquefòlia *Hort. Par.*; *V*itis *h*ederàcea *Willd. Spec.* p. 1182.; Ampelópsis quinquefòlia *Hook. Fl. Bor. Amer.* 1. 114., and *Tor. & Gray*; Vigne Vierge, *Fr.*; Jungfern Reben, or wilder Wein, *Ger.*; Vite del Canadà, *Ital.*
*Engravings.* Cornut. Canad., t. 100.; and our *fig.* 188.

*Spec. Char., &c.* Leaves digitate, of from 3 to 5 leaflets, that are stalked oblong, toothed with mucronated teeth. Racemes dichotomously corymbose. (*Dec. Prod.*) A tendriled climber. Canada to Georgia. Stem 30 ft. to 50 ft., or more. Introduced in 1629 Flowers yellowish green; June

and July. Berry black or dark blue; ripe in October. Decaying leaves deep purple or red, or yellowish red.

*Variety.*

♃ *A.* h. 2 *hirsùta* Tor. & Gray. A. hirsùta *Donn;* *Císsus hederàcea* β hirsùta *Pursh.*—Leaves pubescent on both sides, leaflets ovate. The plants of this variety in British gardens do not die off of so intense a crimson as the species.

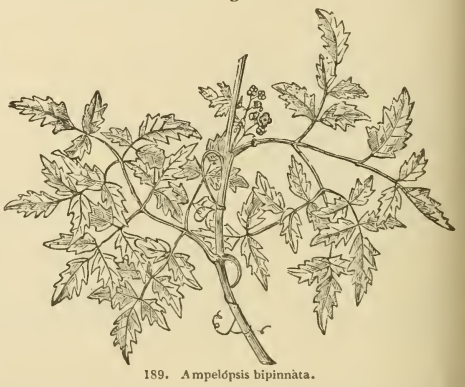
188 Ampelópsis *hederàcea.*

Stem attaching itself to trees and walls by expansions of the extremities of the tendrils. Panicle many-flowered. Petals at first somewhat cohering, at length spreading. Berry about as large as a small pea, the peduncles and pedicels bright crimson; and the foliage in autumn, before it dies off, of a deep crimson. The most vigorous-growing and generally ornamental climber in Europe. It thrives in almost every soil and situation from Warsaw to Naples, and in town, as well as in the country.

♃ 2. A. BIPINNA'TA *Michx.* The bipinnate-*leaved* Ampe'opsis.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 160.; Dec. Prod., 1. p. 633.; Don's Mill., 1. p. 694.
*Synonymes.* *V*ìtis arbòrea *Willd. Spec.* 1. p. 1183.; *V*ìtis bipinnàta *Tor. & Gray*; Cissus stàns *Pers. Syn.* 1. p. 183., *Ph. Fl. Amer. Sept.* 1. p. 170.; Vite del Carolina, *Ital.*
*Engravings.* Pluk. Mant., p. 412. fig. 2.; and our *fig.* 189.

*Spec. Char., &c.* Leaves bipinnate, smooth; leaflets cut in a lobed manner. Racemes pedunculate, almost doubly bifid. Berries globose and cream-coloured. (*Dec. Prod.*) A tendriled climber. Virginia to Georgia. Stem 10 ft. to 20 ft. Introduced in 1700. Flowers greenish white; June to August. Berry black; ripe in October. Decaying leaves purplish red, sometimes yellowish red.



189. Ampelópsis bipinnàta.

Stem upright, or somewhat twining, glabrous. Panicle short, spreading, and without tendrils. Berry globose, depressed, as large as a small pea, blackish when ripe, slightly hairy. (*Tor. and Gray.*) A very handsome climber, of easy culture, and much admired for the beauty of its foliage. Compared with A. *hederàcea*, it is of slow growth, the shoots in the climate of London being seldom more than 18 in. or 2 ft. in a season.

*Other Species of Ampelópsis.* — *A. incìsa*, *V*ìtis incìsa *Nutt.*, is described in Torrey and Gray's *Flora;* but we are not aware of its having been introduced. *A.* cordàta *Michx.* (the *C*íssus Ampelópsis of Persoon, and *V*ìtis indivìsa of Willdenow) is described in the first edition of this work; but, as we consider it a very doubtful species, we have omitted it in this abridgement. A. capreolà a *G. Don*, *V*ìtis capreolàta *D. Don*, and A. bótrya *Dec.*, are also omitted, as not having been yet introduced.

## Genus III.

### CI'SSUS *L.* The Cissus. *Lin. Syst.* Tetrándria Monogýnia.

*Identification.* Lin. Gen., No. 147.; Dec. Prod., 1. p. 627.; Don's Mill., 1. p. 689.
*Synonymes.* Ampelópsis, and *Vitis* in part.
*Derivation.* *Kissos* is the Greek name of the ivy, which these plants in some manner resemble.

*Gen. Char.* *Calyx* almost entire. *Petals* 4, falling off separately. *Ovary* 4-celled. *Berry* 1—4-seeded. (*Dec. Prod.*)

*Leaves* compound, alternate, exstipulate, deciduous; trifoliate. *Flowers* axillary, small, greenish. *Fruit* a berry. —Climbing shrubs, only one of which is hardy in British gardens.

1. *C.* ORIENTA'LIS. The oriental Cissus, *or Ivy Vine.*

*Identification.* Lam. Ill. p. 332. Don's Mill., 1. p. 694.
*Engravings.* Lam. Ill., t. 84. fig. 2.; and our fig. 190.

*Spec.Char.,&c.* Leaves bipinnate, smooth; leaflets ovate, serrated. (*Don's Mill.*) A deciduous climber. Levant. Stem 5 ft. to 10 ft. Introd. in 1818. Flowers yellowish green; June and July. Berry, ?.

We have only seen the plant bearing this name in the collection of Messrs. Loddiges, from which our figure is taken, and which, as it does not agree very well with the specific character, is perhaps not the true plant. At all events, the plant figured is handsome, and as vigorous and hardy as Ampelópsis bipinnàta.

190. Cissus orientàlis.

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## Order XVII. XANTHOXYLA'CEÆ.

*Ord. Char.* *Flowers* unisexual, regular. *Calyx* in 3—5 divisions. *Petals* the same number, longer than the calyx; æstivation generally twisted. *Stamens* equal in number to the petals; in the female flowers wanting or imperfect. *Ovary* with as many carpels as there are petals. *Fruit* either berried or membranous.—Trees or shrubs, chiefly natives of warm climates. (*Lindl.*)

*Leaves* compound, alternate or opposite, without stipules; abruptly or unequally pinnate; with pellucid dots. *Flowers* axillary or terminal; grey, green, or pink.—The species in British gardens are comprised in three genera, which are thus contradistinguished:—

Xantho'xylum *L.* Flowers bisexual. Carpels 1—5, 2-valved. Leaves abruptly and impari-pinnate.

Pte'lea *L.* Flowers bisexual. Fruit compressed, 2—3-celled; cells winged. Leaves of 3 leaflets, rarely of 5 leaflets.

*Aila'ntus* Desf. Flowers polygamous. Carpels 3—5, membranous. Leaves abruptly or impari-pinnate.

## Genus I.

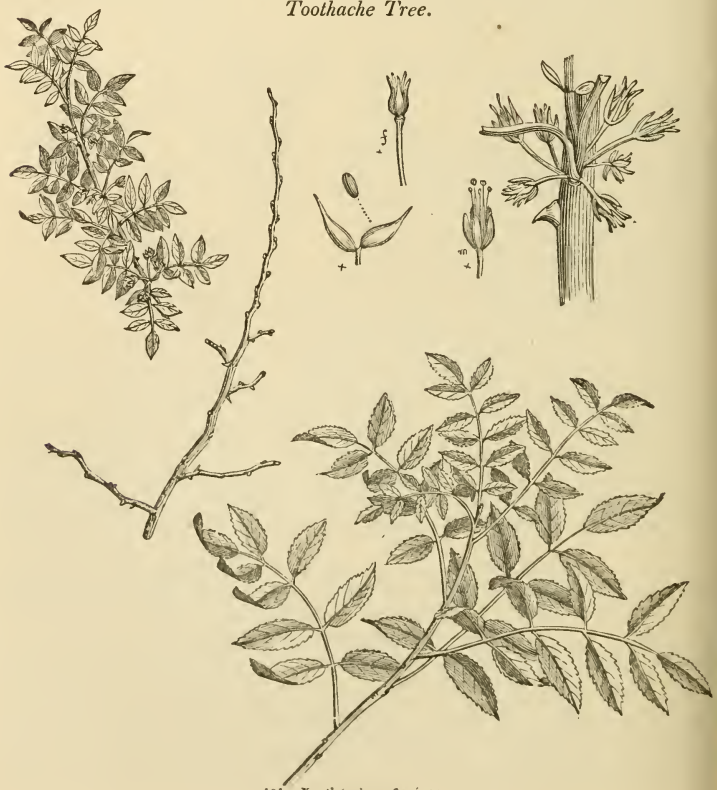
### XANTHO'XYLUM *L.*, and *H. B. et Kth.* The Xanthoxylum, *or* *Toothache Tree.* *Lin. Syst.* Diœ'cia Tri-Pentándria.

*Identification.* Lin. Gen., No. 150. and 1109.; Dec. Prod., 1. p. 725.; Don's Mill., 1. p. 801.
*Synonymes.* Zanthóxylum (it is thus spelled in many botanical works); Kampmánn*ia* Rafin.; Clavalier, *Fr.*; Zahnwehholz, *Ger.*; Santossilo, *Ital.*
*Derivation.* From *xanthos*, yellow, and *xulon*, wood; from the yellowness of the wood, more especially of the roots. The French name means club tree, and the German name, the toothache tree.

*Gen. Char.* *Calyx* short, 3—4-parted. *Petals* equal in number to the lobes of the calyx, but longer, very rarely wanting.—*Male flowers.* *Stamens* equal in number with the petals.—*Female flowers.* *Stamens* sometimes wanting, or very short. *Ovaries* 5—1, sometimes equal in number to the petals. *Capsules* 1—5, 1—2-seeded. *Seeds* globose, dark, shining. (*Don's Mill.*)

*Leaves* compound, alternate, stipulate, deciduous; pinnately 3—13-foliolate. *Flowers* axillary, small, greenish or whitish. *Inflorescence* various.—Deciduous low trees or shrubs, natives of North America, with prickles on the branches, petioles, and midrib of the leaflets. The species in British gardens are of easy culture in any common soil, and are easily propagated by seeds, layers, or cuttings of the roots.

♃ ✻ 1. X. FRAXI'NEUM *Willd.* The Ash-*leaved* Xanthoxylum, *or common Toothache Tree.*



191. Xanthóxylum fraxíneum

*Identification.* Willd. Sp., 4. p. 757.; Dec. Prod., 1. p. 726.; Don's Mill., 1. p. 802.
*Synonymes.* Zanthóxylum ramifłorum *Mich. Fl. B. A.* 2. p. 235.; Z. Clàva Hérculis var. *Lin. Sp* 1455., *Lam. Dict.* 2. p. 38.; Z. americànum *Mill. Dict.* No. 2., and *Tor. & Gray*, 1. p. 214.; Z. mìte *Willd. Enum*; Z. caribæ'um *Gært. Fruct.*, but not of Lam.; Z. tricárpum *Hook.* not of Michx.; Clavalier à Feuilles de Frêne, *Fr.*; Eschen-blattriges Zahnwehholz, *Ger.*; Prickly Ash, *Amer.*; Frassino spinoso, *Ital.*
*Engravings.* Du Ham. Arb., 1. t. 97.; the plate of this species in Arb. Brit., 1st edit., vol. v.; and our *fig.* 191.

*Spec. Char., &c.* Leaves pinnate, of 4 to 5 pairs of leaflets, and an odd one; the leaflets ovate, obscurely sawed, equal at the base; the petiole round, and devoid of prickles; prickles in the situation of stipules. Flowers in axillary umbels, without petals. (*Dec. Prod.*, i. p. 726, 727.) A low deciduous tree or shrub. Canada to Virginia. Height 10 ft. to 15 ft. Introd. 1740. Flowers yellowish, with red anthers; April and May. Seeds large, black; ripe in September. Decaying leaves yellowish green. Naked young wood ash-coloured and greenish.

*Variety.*

♃ ♣ X. f. 2 *virgínicum*, the X. virgínicum of Lodd. Cat., of which there is a plantin the garden of the London Horticultural Society, and several in the arboretum of Messrs. Loddiges, appears to us only a variety of X. *f*raxíneum; probably the same as X. (*f.*) tricárpum.

♃ ♣ 2. X. (*F.*) TRICA'RPUM *Michx.* The three-fruited Xanthoxylum, *or Tooth-ache Tree.*

*Identification.* Michx. Fl. Bor. Amer., 2. p. 335.; Dec. Prod., 1. p. 726.; Don's Mill., 1. p. 803.
*Synonymes.* Z. caroliniànum *Lam., Tor. & Gray*, 1. p. 214.; *Fagàra f*raxinifòlia *Lam. Ill.* 1. t. 334.
*Engravings.* Lam. Ill., 1. t. 334.; and our *fig.* 192.

*Spec. Char., &c.* Leaves pinnate; the leaflets 3 to 5 pairs, and an odd one, all on short stalks, oblong oval, acuminate, finely sawed, oblique at the base. Petioles and branches prickly. Panicles terminal. Petals 5. (*Dec. Prod.*) A low tree or shrub. North Carolina to Florida. Height 10 ft. to 15 ft. Introd. 1806. Flowers greenish; June. Seeds large, black; ripe Oct.

192. Xanthóxylum tricárpum.

Leaves and bark very aromatic and pungent. Prickles very sharp. The bark of this and the preceding species is imported from New York, and sold in Covent Garden Market as a cure for the rheumatism. Probably a variety of the preceding species.

*Other Species of Xanthóxylum.*—X. mìte *Willd.*, treated as a species by some authors, is made a synonyme of X. *f*ráxineum by Torrey and Gray, and it probably bears the same relation to that species that Gledítsch*ia* inérmis does to G. triacánthos. Our opinion is, that there is only one species of the genus in British gardens.

## GENUS II.

*PTE`LEA L.* THE PTELEA, *or SHRUBBY TREFOIL.* *Lin. Syst.* Monœ'cia Tetra-Pentándria.

*Identification.* Lin. Gen., No. 152.; Dec. Prod., 2. p. 82.; Don's Mill., 1. p. 806.
*Synonymes.* *Bellìcia* Adans.; Orme de Samarie, *Fr.*; Lederblume, *Ger.*
*Derivation.* From *ptelea*, the Greek name of the elm, adopted by Linnæus.

*Gen. Char.* *Calyx* short, 4—5 parted. *Petals* 4—5, longer than the calyx. —*Male flowers.* *Stamens* 4—5, longer than the petals.—*Female flowers.*

*Stamens* 4—5, very short. *Style* short. *Fruit* compressed, indehiscent, samara-like, turgid, 2—3-celled. *Seeds* oblong. (*Don's Mill.*)

*Leaves* compound, alternate, stipulate, deciduous; pinnate, 3- rarely 5-foliolate, with pellucid dots, the lateral leaflets inequilateral. *Flowers* whitish, cymose: cymes corymbed or panicled.—Deciduous shrubs or low trees, natives of North America and Asia. There is only one species in British gardens, which is of the easiest culture, and is propagated by seeds and cuttings, put in in autumn, and covered with a hand glass.

♃ ♨ 1. *P.* TRIFOLIA'TA *L.* The three-*leafleted* Ptelea, *or Shrubby Trefoil.*

*Identification.* Lin. Sp., 173.; Willd. Sp. Pl., 1. 670.; Dec. Prod., 2. p. 82.; Don's Mill., 1. p. 806.; Tor. and Gray, 1. p. 215.
*Synonymes.* Orme de Samarie à trois Feuilles, *Fr.*; dreyblättrige Lederblume, *Ger.*
*Engravings.* Dill. Elth., t. 122.; Schmidt Arb., 2. t. 76.; the plate in Arb. Brit., 1st. edit., vol. v.; and our *fig.* 193.

*Spec. Char., &c.* Leaf of three leaflets that are ovate acute, the middle one much tapered towards its base. Flowers in corymbs, usually tetrandrous. (*Dec. Prod.*) A low tree or shrub. Lake Erie to Florida and Texas. Height 6 ft. to 10 ft. Introd. 1704. Flowers whitish; June and July; Capsules greenish; ripe in October. Decaying leaves of a remarkably clear rich yellow. Naked young wood dark purplish brown.

*Varieties.*

♃ ♨ P. *t.* 2 *pentaphýlla* Munchh. has 5 leaflets, H. S.

♃ ♨ P. *t.* 3 *pubéscens* Pursh has the leaflets pubescent.

When this plant is pruned up with a single stem, it forms a handsome low tree with a hemispherical head; but in British gardens it is more frequently

193. *Ptèlea trifoliàta.*

found as a large shrub, with numerous stems proceeding from the rootstock. The shoots and leaves pubescent when young. Ovary of the staminate flowers abortive. Odour of the flowers disagreeable. Capsules with flattened wings, somewhat resembling those of the elm.

*Other Species of* Ptèlea. — P. *Baldwínii* is described by Torrey and Gray as a shrub not more than a foot high, but it has not yet been introduced

## Genus III.

*AILA'NTUS* Desf. The Ailanto. *Lin. Syst.* Polygàmia Monœ'cia.

*Identification.* Desf. Act. Acad. Par., 1786, p. 263 ; Dec. Prod., 2. p. 88. ; Don's Mill., 1. p. 807.
*Synonymes.* *Rhûs Ehrh.*, *Ellis*, and *Mœnch* ; Verne du Japon, *Fr.* ; Götterbaum, *Ger.*
*Derivation.* Ailanto is the name of *Ailántus* glandulòsa *Desf.* in the Moluccas. It was long considered as a species of *Rhûs*, whence the French name ; and the meaning of the aboriginal word being, it is said, tree of heaven, hence the German name, Götterbaum, tree of the gods.

*Gen. Char.* *Male flowers.* *Calyx* 5 cleft. *Petals* 5, longer than the calyx. *Stamens* 10, the 5 opposite the petals shortest. *Disk* central.—*Hermaphrodite*, or *female*, *flowers.* *Calyx*, *petals*, and *disk* as in the male, but with fewer stamens. *Ovaries* 3—5, distinct. *Samaræ* 3—5, oblong ; 1-celled, 1-seeded. (*Don's Mill.*)

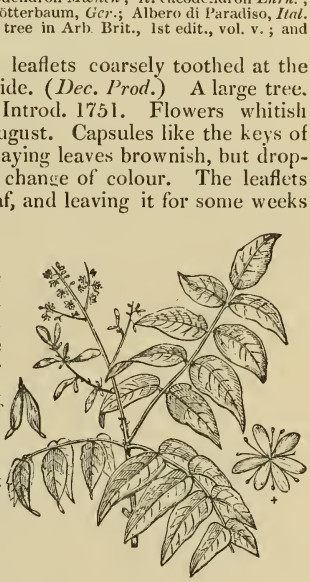
*Leaves* compound, alternate, exstipulate, deciduous; impari-pinnate. *Flowers* terminal, small, greenish. — One species, a deciduous tree from China.

♃ 1. *A.* glandulo'sa *Desf.* The glandulous-*leaved* Ailanto.

*Identification.* Desf. Act. Acad. Par. 1786, p. 263. ; Dec. Prod., 1. p. 89. ; Don's Mill., 1. p. 807.
*Synonymes.* *A.* procèra *Sal. Prod.* p. 271. ; *Rhûs* hypselodéndron *Mœnch* ; *R.* cacodéndron *Ehrh.* ; *R.* sinénse *Ellis* ; Aylanthe glanduleux, *Fr.* ; drüsiger Götterbaum, *Ger.* ; Albero di Paradiso, *Ital.*
*Engravings.* Wats. Dend. Brit., t. 108. ; the plate of the tree in Arb. Brit., 1st edit., vol. v. ; and our *fig.* 194.

*Spec. Char., &c.* Leaves impari-pinnate ; the leaflets coarsely toothed at the base ; the teeth glandulous on the under side. (*Dec. Prod.*) A large tree. North of China. Height 50 ft. to 60 ft. Introd. 1751. Flowers whitish green, exhaling a disagreeable odour ; August. Capsules like the keys of the ash, but smaller ; ripe in October. Decaying leaves brownish, but dropping with the first frost, without any great change of colour. The leaflets often separating from the petiole of the leaf, and leaving it for some weeks attached to the tree. Naked young wood rusty brown, without buds.

The leaves on vigorous young trees are sometimes 6 ft. in length. The fruit, which has been ripened at White Knights, resembles the keys of the ash, but is smaller. The tree grows with great rapidity for the first 10 or 12 years, producing shoots from 3 ft. to 6 ft. in length at first, and attaining the height of 15 or 20 feet in 5 or 6 years, in favourable situations. Afterwards its growth is much slower. It grows in any soil, though one that is light and somewhat humid, and a sheltered situation, suit it best. In France, it is said to thrive on chalky soils, and attain a large size where scarcely any other tree will grow. It is readily propagated by cuttings of the roots.



194. *Ailántus* glandulòsa.

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## Section IV.

*Fruit gynobasic ; that is, inserted into a fleshy Receptacle, with which the Style is continuous.*

## Order XVIII. CORIA'CEÆ.

*Ord. Char.* *Flowers* either hermaphrodite, monœcious, or diœcious. *Calyx* campanulate, 5-parted. *Petals* 5. *Stamens* 10. *Carpels* 5.—Low shrubs, natives of temperate and warm climates.

*Leaves* simple, opposite or alternate, exstipulate, deciduous; entire. *Buds* scaly. *Flowers* in terminal and axillary racemes. *Fruit* in some poisonous, in others edible. — There is only one hardy genus, *C*oriària; the species of which are low shrubs, natives of Europe and Asia.

## Genus I.

### CORIA'RIA *Niss.* The Coriaria. *Lin. Syst.* Diœ'cia Decándria.

*Identification.* Niss. in Act. Par. 1711, t. 12.; Dec. Prod., 1. p. 739.; Don's Mill., 1. p. 818.
*Synonymes.* Redoul, *Fr.*; Gerberstrauch, *Ger.*
*Derivation.* From *corium*, a hide; *C. m*yrtifòlia being used both in tanning leather and in dyeing it black.

*Gen. Char. Flowers* either hermaphrodite, monœcious, or diœcious. *Calyx* 5-parted. *Petals* 5, sepaloid, smaller than the lobes of the calyx. *Stamens* 10, hypogynous, 5 between the lobes of the calyx and the angles of the ovarium, 5 between the petals and the furrows of the ovarium. *Anthers* bursting by longitudinal slits. *Style* none. *Stigmas* 5, long, awl-shaped. *Carpels* 5, surrounding a fleshy axis; when ripe, close together, but separate, not opening, 1-seeded, surrounded with glandular lobes. (*Lindl.*)

*Leaves* simple, opposite, exstipulate, deciduous; 3-ribbed. *Branches* square, opposite. — Low suffruticose shrubs, of easy culture in common soil, and propagated by division of the root.

#### 1. *C.* MYRTIFO'LIA *L.* The Myrtle-leaved Coriaria.

*Identification.* Lin. Sp., 1467.; Dec. Prod., 1. p. 739.; Don's Mill., 1. p. 818.
*Synonymes.* Fustet des Corroyeurs, or Redoul à Feuilles de Myrte, *Fr.*; Myrtenblättriger Gerberstrauch, *Ger.*
*Engravings.* Lam. Ill., t. 822.; Wats. Dend. Brit., t. 103.; and our *fig.* 195.

*Spec. Char., &c.* Leaves ovate-lanceolate, acute, three-nerved, on short footstalks, glabrous. Flowers in rather upright racemes. (*Dec. Prod.*) A low, deciduous, suffruticose shrub, consisting of numerous suckers. South of Europe, and the North of Africa. Height 2 ft. to 3 ft. Introduced 1629. Flowers greenish; May to August. Carpels in the form of a berry, black; ripe in October. Leaves drop off of a brownish green.

195. Coriària *m*yrtifòlia.

196. *C.* nepaléns.

Found in hedges and waste places, throwing up numerous suckers. An ornamental undershrub, chiefly remarkable for its myrtle-like leaves, and the handsome frond-like form of its branches. Suckers in any common soil.

*Other Species of Coriària.* — *C. nepaléns*. Wall. Pl. As. Rar. t. 289., and our *fig.* 196., from a specimen gathered in the Hort. Soc. Gardens, a native of Nepal, at heights of from 5000 ft. to 7000 ft., appears to be quite hardy, and of robust growth. *C. sarmentòsa* Forst, from New Zealand, is probably hardy also, but has not yet been introduced.

## Subclass II. CALYCIFLO`RÆ.

*Petals separate, inserted in the Calyx.*

## Order XIX. STAPHYLEA`CEÆ.

*Ord. Char.* *Sepals* 5, connected at the base, coloured, with an imbricated æstivation. *Petals* 5, alternate. *Stamens* 5. *Disk* large. *Ovary* 2—3-celled. *Fruit* membranous or fleshy. — Shrubs, natives chiefly of warm climates. (*Lindl.*)

*Leaves* compound, opposite, stipulate, deciduous. *Flowers* terminal. *Fruit* a bladdery capsule. — The only hardy ligneous plants belonging to this order are contained in the genus Staphylêa.

### Genus I.

**STAPHYLE`A** *L.* The Staphylea, *or Bladder-nut Tree. Lin. Syst.* Pentándia Di-Trigýnia.

*Identification.* Lin. Gen., No. 374.; Dec. Prod., 2. p. 2.; Don's Mill., 2. p. 2.
*Synonymes.* Staphylodéndron *Tourn.*; Staphilier, faux Pistachier, *Fr.*; Pimpernuss, *Ger.*; Stafilea, *Ital.*
*Derivation.* Abridged from Staphylodéndron, its name before the days of Linnæus, derived from *staphulē*, a bunch or cluster, and *dendron*, a tree; the flowers and fruits being disposed in clusters, and the plant being ligneous.

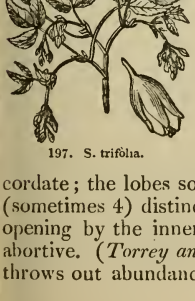
*Gen. Char.* *Calyx* of 5 coloured sepals, connected at the base, in æstivation imbricate. *Petals* 5, in æstivation imbricate. *Stamens* 5, perigynous, alternate with the petals, and opposite the sepals. A large urceolate disk, or nectary, within the corolla. *Ovarium* 2- or 3-celled, superior. *Fruit* membraneous. *Seeds* with a bony testa, and a large truncate hilum. (*Lindl.*)

*Leaves* compound, opposite, stipulate, deciduous; pinnate, with both common and partial stipules. *Flowers* in terminal stalked racemes. — Two hardy species, low trees or shrubs; natives of Europe and North America, of easy culture in any common soil, and propagated by seeds, which ought to be sown as soon as they are ripe, or by cuttings.

♃ ♆ 1. S. trifo`lia *L.* The three-leaved Staphylea, *or Bladder-nut Tree.*

*Identification.* Lin. Sp., 386.; Dec. Prod., 2. p. 2.; Don's Mill., 2. p. 2.; Tor. and Gray, 1. p. 256.
*Synonymes.* Staphilier à Feuilles ternées, *Fr.*; Virginische Pimpernuss, *Ger.*
*Engravings.* Schmidt Baum., t. 81.; our *fig.* 197. in flower, and *fig.* 198. in fruit.

*Spec. Char., &c.* The leaf of 3 leaflets, which are ovate, acuminate, regularly sawed, and, when young, pubescent; the style smooth; the capsule bladdery. (*Dec. Prod.*) A deciduous shrub or low tree. Canada to South Carolina, and west to Arkansas, in moist places. Height 6 ft. to 12 ft. Introduced in 1640. Flowers whitish; May and June. Nuts globose, in a bladdery capsule, white; ripe in October. Decaying leaves greenish yellow.


197. S. trifolia.

Branches slender, smooth, and dotted. Petioles pubescent above. Partial stipules mostly none. Petals obovate-spatulate, ciliate at the base. Stamens rather exserted; filaments hairy below; anthers cordate; the lobes somewhat united at the tip. Capsule 2 in. long; the carpels (sometimes 4) distinct at the summit, tipped with the persistent styles, and opening by the inner suture; seeds smooth and polished all but one often abortive. (*Torrey and Gray.*) When not trained to a single stem, this shrub throws out abundance of shoots resembling suckers from the collar; but, if

198. S. trifolia.

these be removed as they are produced, it will form a very handsome low tree. Seeds, suckers, layers, or cuttings, in any common soil, kept moist. The largest plants of this species, in the neighbourhood of London, are at Syon.

♃ ♆ 2. S. PINNA'TA *L.* The pinnated-*leaved* Staphylea, *or Bladder-nut Tree.*

*Identification.* Lin. Sp., 386.; Dec. Prod., 2. p. 3.; Don's Mill., 2. p. 3.
*Synonymes.* Staphylodéndron pinnàtum *Ray*; Staphilier à Feuilles ailées, *Fr.*; gemeine Pimpernuss, *Ger.*; Lacrime di Giobbe, or Pistacchio falso, *Ital.*; Job's Tears.
*Engravings.* Eng. Bot., t. 1560.; Hayne Abbild., t. 36.; and our *fig.* 199.

*Spec. Char., &c.* Leaves pinnate, of 5—7 oblong, perfectly glabrous, serrate leaflets; the flowers in racemes; the capsules membranous and bladdery. (*Dec. Prod.*) Shrub or low tree. South of Europe, and ? England in hedges. Height 6 ft. to 12 ft. Flowers whitish; May and June. Nuts globose white, in a bladdery capsule; ripe in October. Decaying leaves yellowish green. Naked young wood greenish, with green buds.

A smooth branching shrub, throwing up many side suckers, in gardens often from 6 ft. to 12 ft. high, and exhibiting a much more luxuriant growth than the preceding species. The nuts, in some parts of Europe, are strung for beads by the Roman Catholics. The kernels taste like those of the pistacia, and are eaten in Germany by children. The flowers contain a great deal of honey, and are very attractive to bees. In the London nurseries, the plant is generally cultivated by side suckers, by cuttings put in during the month of September, or by seeds, which are ripened in abundance. The seeds ought to be sown as soon as they are ripe; because, as they contain an oil, they very soon become rancid. They will come up the following June, with two large, lance-shaped, seminal leaves; though sometimes they do not come up for two years.

199. Staphylèa pinnàta.

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## ORDER XX. CELASTRA'CEÆ.

*ORD. CHAR. Sepals* 4—6: æstivation imbricate. *Petals* 4—6. *Stamens* 4—6, alternate with the petals, opposite the sepals, indistinctly perigynous. *Ovary* superior, free, girded with a fleshy disk, with 2—4 cells. *Ovules* erect, rarely pendulous. *Fruit* capsular, baccate, drupaceous, or samarideous. *Seeds*, in most, attended with an aril. (*Lindl.*)

*Leaves* simple, alternate or opposite, generally stipulate, deciduous, or evergreen. *Flowers* whitish or greenish, in axillary cymes. — Shrubs or low trees, generally deciduous; natives of both hemispheres.

The species are chiefly remarkable for the form and colours of their fruits; their flowers being neither large nor showy, nor their properties valuable in medicine, or general economy. All the species are readily increased by layers, by cuttings struck in sand, or by seeds in any common soil. The genera containing hardy species are *Euónymus*, *Celástrus*, and Nemopánthes, which are thus contradistinguished: —

*EUO'NYMUS Tourn.* Sexes mostly hermaphrodite. Fruit a dehiscent capsule, of 3—5 cells. Seed with an aril. Leaves mostly opposite.

*CELA'STRUS L.* Sexes mostly hermaphrodite. Fruit a dehiscent capsule of 2—3-cells. Seed with an aril. Leaves alternate.

NEMOPA'NTHES *Rafin.* Sexes polygamous or diœcious. Fruit an indehiscent berry

## GENUS I.

EUO'NYMUS *Tourn.* THE EUONYMUS, *or* SPINDLE TREE. *Lin. Syst.* Tetra-Hex-ándria Monogýnia.

*Identification.* Tourn. Inst., t. 388.; Lin. Gen., 271.; Dec. Prod., 2. p. 3.; Don's Mill., 2. p. 3.
*Synonymes.* Fusain, Bonnet de Prêtre, or Bois à Lardoire, *Fr.*; Spindelbaum, *Ger.*, Evonimo, *Ital.*
*Derivation.* The word *Euónymus* is formed from the Greek, and signifies of good repute. The French word Fusain means a spindle, alluding to the use of the wood for making spindles. Bonnet de Prêtre alludes to the form of the capsules, which, when opened, bear some resemblance to a priest's cap; and it is called Bois à Lardoire from the use made of the wood for skewers or larding pins. The German name is literally spindle tree.

*Gen. Char.* *Calyx* 4—5-lobed, flat, covered by the peltate disk at the base. *Petals* 4—6, spreading, inserted in the disk. *Stamens* 4—6, inserted above the disk in rather prominent glands. *Capsule* 3—5-celled, 3—5-angled. *Seeds* 1—4 in each cell, and wrapped in pulp or aril. (*Don's Mill.*)

*Leaves* simple, opposite, serrate. *Stipules* mostly none. *Peduncles* axillary, 1—many-flowered. *Inflorescence* cymose. — Deciduous shrubs or low trees; sometimes trailing, or climbing by rootlets.

♃ ❀ 1. *E.* EUROPÆ'US *L.* The European Euonymus, *or Spindle Tree.*

*Identification.* Lin. Sp., 286.; Dec Prod., 2. p. 4.; Don's Mill., 2. p. 3.
*Synonymes.* *E.* vulgàris *Mill. Dict.*; Prick-timber *Gerard*; Louse Berry, Dogwood, Gatteridge Tree; Fusain d'Europe, *Fr.*; Bonnet de Prêtre commun, *Fr.*; gemeine Spindelbaum, *Ger.*; Berette di Prete, *Ital.*
*Derivation* The English name Prick-timber, or Prick-wood, alludes to the employment of the wood in making toothpicks and skewers, which were formerly called pricks; and it is called Dogwood, because the wood of *Córnus* sanguínea and that of the *Euónymus* europæ'us are used indiscriminately for the same purposes, both being called Gatteridge Tree; the meaning of which we do not know. It is called Louse-wood, because the powdered leaves were formerly put on the heads of children to chase away lice.
*Engravings.* Smith's Eng. Bot., t. 362.; the plate of the tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 200.

200. *Euónymus* europæ'us

*Spec. Char., &c.* Branches smooth. Leaves lanceolate-ovate, very finely sawed. Flowers about 3 upon one peduncle; the petals oblong, rather acute. Lobes of the capsule obtuse. (*Dec. Prod.*) A deciduous shrub, or low tree. Europe and Britain, in hedges and copse woods. Height 6 ft. to 12 ft. Flowers greenish white; May. Fruit scarlet, produced in great abundance,

and very showy; ripe in September. Decaying leaves reddish. Naked young wood green or reddish green.

*Varieties.*

♃ ♣ E. *e.* 2 *latifòlius* Lodd. Cat. has rather broader leaves than the species.

♃ ♣ E. *e.* 3 *fòliis variegàtis* Lodd. Cat. has variegated leaves, but never looks healthy.

♃ ♣ E. *e.* 4 *fructu álbo* Lodd. Cat. has white capsules.

♣ E. *e.* 5 *nànus* Lodd. Cat. is a dwarf-growing plant.

Nos. 2. and 4. of these varieties are, in our opinion, alone worth cultivating.

Roots numerous and whitish, forming a dense mass of network, and not extending to a great distance from the stem. The branches are numerous and opposite; and the wood hard and fine-grained. The leaves and bark are acrid, poisonous, and fetid when bruised. The capsules are of a fine rose colour, except in the white-capsuled variety, and the seeds are each invested with an aril of a fine orange colour. In a state of cultivation the tree attains the height of 30 ft. or upwards, and, though almost entirely neglected in pleasure-grounds, it forms a singularly handsome object in autumn, when covered with its ripe fruit. Seeds; in any common soil not over moist.

♃ ♣ 2. *E.* VERRUCO'SUS *Scop.* The warted-*barked* Euonymus, *or Spindle-Tree.*

*Identification.* Scop. Carn., ed. 2. No. 268.; Dec. Prod., 2. p. 4.; Don's Mill., 2. p. 4.
*Synonymes.* *E.* europæ'us leprò̀sus *Lin.*; Fusain galeux, ou verruqueux, *Fr.*; warziger Spindelbaum, *Ger.*
*Engravings.* Nouv. Du Ham., 3. t. 8.; Schmidt Arb., t. 72.; and our *fig.* 201.

*Spec. Char., &c.* Branches warted with prominent lenticular glands. Leaves ovate, slightly serrate. Flowers three on a peduncle. Petals ovate. Capsule bluntly 4-cornered. (*Dec. Prod.*) A deciduous shrub or low tree. Austria, Hungary, and Carniola. Height 6 ft. to 12 ft. Introduced in 1763. Flowers purplish brown; May and June. Fruit reddish purple; ripe in September. Decaying leaves reddish green. Naked young wood green, with brown and white spots.

201. *Euónymus verrucòsus.*

A shrub of somewhat fastigiate habit of growth, with rough warty branches. This species is cultivated in collections chiefly for the singularity of its appearance, being among spindle trees what the warted ash is among ash trees. It ripens seeds, and is readily increased by cuttings.

♃ ♣ 3. *E.* LATIFO'LIUS *C. Bauh.* The broad-leaved Euonymus, *or Spindle Tree.*

*Identification.* C. Bauh. Pin., 428.; Dec. Prod., 2. p. 4.; Don's Mill., 2. p. 4.
*Synonymes.* *E.* europæ'us var. 2. *Lin.*; Fusain à larges Feuilles, *Fr.*; breitblättriger Spindelbaum, *Ger.*
*Engravings.* Jacq. Fl. Austr., t. 289.; Bot. Mag., 2384.; the plate of the species in Arb. Brit., 1st edit., vol. v.; and our *fig.* 202.

*Spec. Char., &c.* Branches smooth. Leaves broad-ovate, toothleted. Peduncles trichotomous, many-flowered. Petals oval, obtuse. Lobes of capsule acutely angled, wing-formed. (*Don's Mill.*) A deciduous shrub or low tree. South of France to Tauria, in groves. Height 10 ft. to 20 ft. Introduced in 1730. Flowers white, becoming purplish; June and July. Fruit deep red, and very showy; ripe in September. Decaying leaves purplish red. Naked young wood reddish green, with long pointed green buds, tinged with red.

In British gardens, this forms much the handsomest species of the genus.

202. *Euónymus latifòlius.*

from its broad shining leaves, and its large red pendulous fruits, with orange-coloured seeds, which, when the capsules open, are suspended from the cells somewhat in the manner that the seeds of the magnolias hang from their strobiles. Even the wood of this species, during winter, is much handsomer than that of any other, the branches being regularly divaricate, with a clean bark, of a reddish green, and with long pointed dark brown buds; by which alone this species may be distinguished from all the others. Unfortunately for this species, it is generally treated as a shrub, and crowded among other shrubs or trees; so that it is never allowed a chance of attaining either its full size or its proper shape.

♃ 4. *E.* NA'NUS *Bieb.* The dwarf Euonymus, *or Spindle Tree.*

*Identification.* C. Bieb. Fl. Taur. Suppl., p. 160; Dec. Prod., 2. p. 4.; Don's Mill., 2. p. 4.
*Synonyme.* *E.* caucásicum *Lodd.*
*Engraving.* Our *fig.* 203. from Messrs. Loddiges's plant.

*Spec. Char., &c.* Branches smooth, somewhat herbaceous. Leaves lanceolate, entire, nearly opposite. Flowers 4-cleft, from 1 to 3 on a peduncle. (*Dec. Prod.*) A trailing undershrub, with the aspect of the widow wail (*Cneòrum tricóccum*). Northern Caucasus. Height 1 ft. Introduced in 1830. Flowers greenish white; July and August. Fruit ?; ripe ?. Shoots slender, recumbent, and with the leaves of a deep green.

203. *Euónymus nànus.*

A very neat little plant, apparently quite hardy, and well adapted for rock-work.

♃ ❀ 5. *E.* ATROPURPU'REUS *Jacq.* The dark-purple-*flowered* Euonymus, *or Spindle Tree.*

*Identification.* Jacq. Hort. Vind., 2.; Dec. Prod., 2. p. 4.; Don's Mill., 2. p. 5.; Tor. and Gray, 1. p. 257.
*Synonymes.* *E.* caroliniénsis *Marsh. Arb. Amer.* No. 1.; and, probably, *E.* latifòlius *Marsh. Arb. Amer.* No. 2.; Burning Bush, *Amer.*
*Engravings.* Jacq. Hort. Vind., 2. t. 120.; Schmidt Arb., t. 73.; and our *fig.* 204.

*Spec. Char., &c.* Branches smooth. Leaves stalked, lanceolate, serrated.

Flowers many upon a peduncle; the peduncle compressed. Petals orbiculate. Capsules angulately furrowed, smooth. (*Dec. Prod.*) A shrub or low tree. Canada to Florida. Height 4 ft. to 12 ft. Introduced in 1756. Flowers dark purple; June and July. Capsule crimson. Seeds white, with a red aril; ripe in October. Decaying leaves purplish red. Naked young wood purplish green

Branches slightly 4-sided. Leaves 2 in. to 5 in. long. Parts of the flower usually in fours; petals roundish obovate. Capsules smooth, deeply lobed. This and the other American species of *Euónymus* are rarely found in a thriving state in Britain: as it appears to us, from not being planted in moist shady situations, and in peat or sandy soil.

204. *Euónymus atropurpùreus.*

6. *E.* AMERICA'NUS *L.* The American Euonymus, *or Spindle Tree.*

*Identification.* Lin. Sp., 286.; Dec. Prod., 2. p. 4.; Don's Mill., 2. p. 5.; Tor. and Gray, 1. p. 258

*Synonymes.* *E.* sempervìrens *Marsh.*; *E.* alternifòlius *Mœnch*; the Burning Bush, Strawberry Tree, *Amer.*

*Engravings.* Nouv. Du Ham., 3. t. 9.; Schmidt Arb. t. 75.; our *fig.* 205., representing the plant in flower; and *fig.* 206., representing it in seed, with the warty capsule.

*Spec. Char., &c.* Branches smooth. Leaves almost sessile, elliptic-lanceolate, sawed. Flowers 1 to 3 on a peduncle. Petals sub-orbiculate. Capsule echinately warty. (*Dec. Prod.*) A sub-evergreen recumbent shrub. Canada to Florida, among rocks, and in moist woodlands. Height 2 ft. to 6 ft. Introduced in 1686. Flowers greenish yellow, tinged with purple; May and June. Capsule deep crimson. Seeds white, with a scarlet aril; ripe in October. Decaying leaves and naked shoots green.

205. *Euónymus americànus*

206. *Euónymus americànus.*

207. *E.* a. angustifòlius.

*Varieties.*

E. *a.* 2 *angustifòlius.* Var. β *Tor. & Gray.* (Our *fig.* 207.) — Leaves narrowly elliptical or oblong, slightly falcate, the margin minutely serrated. Possibly the *E.* angustifòlius of Pursh, which Torrey and Gray had only seen in a herbarium.

E. *a.* 3 *sarmentòsus* Nutt. Var. γ *Tor. & Gray.* — Shoots trailing and often rooting; leaves ovate-lanceolate.

E. *a.* 4 *obovàtus* Nutt. Var. δ *Tor. & Gray; E.* obovàtus *Dec. Prod.* 2. p. 4., *Don's Mill.* 2. p. 5. (Our *fig.* 208.) — Trailing and rooting; leaves obovate, or oval-obovate, obtuse or slightly acuminate, acute at the base.

208. *E.* a. obovàtus.

Erect. Leaves oval or elliptical lanceolate, the uppermost often slightly falcate, mostly acuminate, acute or obtuse (rarely subcordate) at the base. (*Tor. and Gray*, var. *a.*) Branches slender, green. Leaves 1 in. to 2 in. long, coriaceous, nearly evergreen in the southern states. Seeds smaller than in *E.* atropurpùreus. The scarlet fruits, according to Pursh, resemble, at a distance, those of *A'*rbutus *U'*nedo. They form a great ornament, he says, to this almost evergreen shrub, and have given rise, in America, to its common name, the burning bush. Of easy culture in moist soil, and a shady situation. Cuttings or seeds.

♃ ♠ 7. *E.* HAMILTONIA'NUS Wall. Hamilton's Euonymus, *or Spindle Tree.*

*Identification.* Wall. Fl. Ind., 2. p. 403. ; Don's Mill., 2. p. 4.
*Synonyme.* *E.* atropurpùreus *Wall. Fl. Ind.* 2. p. 402.
*Engraving.* Our *fig.* 209., from a vigorous plant in the Hort. Soc. Garden.

*Spec. Char., &c.* Branches smooth, terete. Leaves lanceolate, finely serrated. Peduncles dichotomous, 6-flowered. Flowers tetrandrous. Petals 4, lanceolate cordate. Ovary 4-lobed, 4-celled, each cell containing 2 ovules. (*Don's Mill.*) A low tree or shrub. Nepal. Height 10 ft. to 20 ft. Introduced in 1825. Flowers yellowish green; June and July. Fruit ? purple; ripe in ? October. Decaying leaves and naked young wood green.

209. *Euonymus Hamiltonianus.*

A free-growing species, with an erect stem ; the young shoots green ; the leaves large ; bark of the older shoots white. Left to itself, as a standard, it forms a dense fastigiate bush, with numerous suckers; but, trained to a single stem, it would doubtless form a handsome small tree. A plant against the wall, in the Horticultural Society's Garden, flowers freely every year; but has not yet ripened fruit. The plant in the open garden was killed to the ground by the winter of 1837-8, but sprang up again with vigour. In the Liverpool Botanic Garden it was not injured.

210. *E.* japónicus.

*Other Species of* Euónymus. — E. *japónicus* Thunb. (our *fig.* 210.), and E. *japónicus fòliis variegàtis*, E. *garcini*æfòlius *Roxb.*, and some other species, are in London gardens ; but they can only be considered as half-hardy. In the Canterbury Nursery, *E.* j. fòliis variegàtis has been found hardier than the species. In the Horticultural Society's Garden, *E.* japónicus, trained against a wall, was but little injured by the winter of 1837-8. The following species, shortly described in our first edition, Mr. Don considers as likely to prove "truly hardy;" some of them are introduced, and are in green-houses : *E.* grössus *Wall.*, *E.* micránthus *D. Don*, *E.* lùcidus *D. Don*, *E.* echinàtus *Wall.*, *E.* tíngens *Wall.*, *E.* glàber *Roxb.*, *E.* fimbriàtus *Wall.*, *E.* índicus *Heyne*, *E.* vàgans *Wall.*, *E.* subtriflòrus *Blume*, *E.* Thunbergiànus Blume, *E.* péndulus *Wall.*, and *E.* frígidus *Wall.*

## Genus II.

### CELA'STRUS *L.* The Celastrus, *or* Staff Tree. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Lin Gen., 270. ; Dec. Prod., 2. p. 5. ; Don's Mill., 2. p. 6.
*Synonymes.* Euonymóides *Mœnch* ; Célastre, *Fr.* ; Celaster, *Ger.*
*Derivation.* From *kēlas*, the latter season : the fruit remaining on the tree all the winter. The *kēlastros* of the Greeks is supposed to be the *Euónymus*.

*Gen. Char. Calyx* small, 5-lobed. *Petals* 5, unguiculate. *Ovary* small, immersed in a 10-striped disk. *Stigmas* 2—3. *Capsule* 2—3 valved. *Seed* 1, in a large fleshy aril. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous ; stipules minute. — One hardy species ; a climbing shrub, a native of North America.

1. *C.* sca'ndens *L.* The climbing-*stemmed* Celastrus, *or Staff Tree.*

*Identification.* Lin. Sp., 285. ; Dec. Prod., 2. p. 6. ; Don's Mill., 2. p. 6 ; Tor. and Gray, 1. p. 257.
*Synonymes.* Bourreau des Arbres, *Fr.* ; Baummörder, *Ger.* ; Bittersweet, Waxwork, *Amer.*
*Engravings.* Nouv. Du Ham., 1. t. 95. ; and our *fig.* 211.

*Spec. Char., &c.* Thornless, climbing, smooth. Leaves oval, acuminate serrate. Flowers diœcious. (*Dec. Prod.*) A deciduous twining shrub. Canada to Virginia. Height 5 ft. to 20 ft. Introduced in 1736. Flowers small, pale yellowish green ; June. Capsules orange ; ripe in September. Seed reddish brown, coated with a bright orange aril, changing at last to scarlet.

The stems are woody and flexible, and twist themselves round trees and shrubs, or round each other, to the height of 12 or 15 feet, or upwards, girding trees so closely as. in a few years, to destroy them ; whence the French and German names, which signify " tree strangler." The leaves are about 3 in. long, and nearly 2 in. broad, serrated, of a lively green above, but paler on the under side. The plant prefers a strong loamy soil, rather moist than dry ; and is readily propagated by seeds, layers, or cuttings.

211. Celástrus scándens.

*Other Species of* Celástrus. — C. *bullàtus*, described from a figure of Plukenet, is, according to Torrey and Gray, a doubtful plant. C. *nepalénsis* and C. *pyracanthifòlius* are in Messrs. Loddiges's collection, but rather tender.

## Genus III.

### NEMOPA'NTHES *Rafin.* The Nemopanthes. *Lin. Syst.* Polygàmia Diœ'cia.

*Identification.* Rafin. Journ. Phys., 1819, p. 96 ; Dec. Prod., 2. p. 17. ; Don's Mill., 2. p. 13.
*Synonyme.* Ilicióides *Dum. Cours.* 1. vol. 4. p. 27.
*Derivation.* From *nemos*, a grove, and *anthos*, a flower ; it being generally found in groves.

*Gen. Char. Calyx* small, scarcely conspicuous. *Petals* 5, distinct, oblong, linear, deciduous. *Stamens* 5, alternating with the petals. *Ovary* hemispherical, covered with clammy juice. *Style* wanting. *Stigmas* 3—4, sessile, in the male flowers hardly manifest. *Berry* globose, 3—4-celled. (*Don's Mill.*)

*Leaves* simple, alternate, ovate, exstipulate, deciduous ; quite entire.—One hardy species.

### ✠ 1. N. CANADE'NSIS *Dec.* The Canadian Nemopanthes.

*Identification.* Dec. Mém. Soc. Gen., l. p. 44.; Pl. Rar. Hort. Gen. t. 3.; Don's Mill., 2. p. 13.
*Synonymes.* *I*lex canadénsis *Michx. Flor. Bor. Amer.* 2. p. 299.; N. fasciculàris *Rafin.*; *I*lex delicátula *Bart. Fl. Vir.* p. 67.; ? *P*rìnos lùcidus *Ait. Hort. Kew.* 2. p. 478.; Houx du Canade, *Fr.*
*Engravings.* Michx. Fl. Bor. Amer. 2. t. 49., as *I*lex canadénsis; and our *fig.* 212.

212. N. canadénsis.

*Spec. Char., &c.* Leaves ovate, quite entire, or serrated at the apex, smooth Pedicels usually solitary, 1-flowered, very long. Flowers white. Berries large, beautiful crimson, very ornamental. (*Don's Mill.*) A deciduous shrub. Canada to Carolina, on mountains. Height 3 ft. to 5 ft. Introduced in 1802. Flowers small, white; April and May. Berry large, beautiful crimson; ripe in October. Very ornamental.

Plants of this species in the Hort. Soc. Garden, and at Messrs. Loddiges's, under the name of *P*rìnos lùcidus, form neat fastigiate shrubs, rather of slow growth. A few years ago there were some very handsome plants of this species at White Knights. Suckers or layers in loamy soil; or cuttings of the young wood in sand under a glass.

213. *Màytenus* chilénsis

*Other Species of Celastràceæ.*—Màytenus *chilénsis* Dec. (our *fig.* 213.), a handsome evergreen branchy shrub, with twiggy branchlets. The flowers are in axillary clusters, with the corolla of a yellowish green colour, not showy. It is a native of Chile, and stood eight or ten winters against a south wall in the Hort. Soc. Garden, and was thought to be tolerably hardy, but was killed to the ground in the winter of 1837–8, and did not spring up again. It also stood several winters in the open garden, as a standard, and promised to be a valuable addition to our hardy evergreen shrubs, which it may possibly yet prove.

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## ORDER XXI. *AQUIFOLIA`CEÆ.*

*Identification.* Lindley's Key, p. 63.
*Synonymes.* Celastrìneæ, tribe *A*quifoliàceæ, in part, *Dec. Prod.* 2. p. 11.; *I*licìneæ, in part, *Lindl. Introd. to N. S.* p. 178., *Don's Mill.* 2. p. 14.

*ORD. CHAR.* *Calyx* and *corolla* with an imbricate æstivation. *Sepals* 4—6. *Corolla* hypogynous, with 4—6 lobes, and as many stamens inserted into it alternately to its lobes. *Ovary* 2—6-celled; a pendulous ovule in each cell. *Fruit* fleshy, indehiscent, with 2—6 stones, each containing a pendulous seed, which has large fleshy albumen. (*Lindl.*)—Low trees or shrubs, chiefly evergreen. Natives of Europe and North America.

*Leaves* simple, alternate or opposite, exstipulate, evergreen or deciduous; coriaceous. *Flowers* small, axillary, solitary or fascicled.—The genera containing hardy species are three, and are thus contradistinguished:—

MYGI'ND*A* Jacq. Sexes hermaphrodite. Stamens 4. Fruit 1-celled, 1-seeded. Shrubs with square branchlets; leaves opposite, subcoriaceous, and flowers upon trifidly or trichotomously branched peduncles.

*I*LEX *L.* Sexes hermaphrodite, diœcious, or polygamous. Stamens 4—5. Fruit including 4 or 5 nuts. Evergreen shrubs with, mostly, coriaceous leaves. Flowers many on a peduncle.

*P*RI`NOS *L.* Sexes mostly diœcious or polygamous. Stamens 6. Fruit including 6 nuts. Shrubs with leaves deciduous or persistent, and flowers 1 upon a peduncle.

## Genus I.

MYGI'ND*A* Jacq. The Myginda. *Lin. Syst.* Tetrándria Monogýnia.

*Identification.* Jacq. Amer., p. 24.; Dec. Prod., 2. p. 12.; Don's Mill., 2. p. 15.
*Synonymes.* *I* lex *Pursh*; Oreóphila *Nutt.* in *Tor. and Gray.*
*Derivation.* So named by Jacquin in honour of *Francis von Mygind*, a German botanist.

*Gen. Char.* *Calyx* small, 4-cleft. *Corolla* deeply 4-cleft, subrotate. *Stamens* 4, alternating with the segments of the corolla, and shorter than them, and inserted in its throat. *Ovary* roundish. *Stigmas* 4. *Drupe* ovate, 1-celled. (*Don's Mill.*)

*Leaves* simple, mostly opposite, exstipulate, evergreen; entire or remotely serrulated. *Flowers* axillary, subsolitary, minute.—One species is hardy.

☙ 1. M. MYRTIFO'LIA *Nutt.* The Myrtle-leaved Myginda.

*Identification.* Nutt. Gen., 1. p. 109., Don's Mill., 2. p. 15.; Dec. Prod., 2. p. 13.
*Synonymes.* *I*lex *Myrsinites* *Pursh*; Oreóphila *myrtifólia* *Nutt*
*Engravings.* Hook Fl. Bor. Amer., t. 41.; and our *fig.* 2.

214. M. *myrtifólia.*

*Spec. Char., &c.* Leaves oblong, blunt, serrated, smooth, with revolute edges. Peduncles very short usually solitary, 1-flowered. Style short, club-shaped 4-lobed at the apex. (*Don's Mill.*) A low evergreen shrub. N.W. coast of North America, and the Rocky Mountains. Height 2 ft. to 4 ft. Introduced in 1818. Flowers small, white; May to August. Drupe dark purple; ripe in Oct.

Plants of this species are in the arboretum of Messrs. Loddiges; where it is increased by cuttings, and grows in common soil.

## Genus II.

*I*LEX *L.* The Holly. *Lin. Syst.* Tetrándria Tetragýnia.

*Identification.* Lin. Gen., No. 172.; Dec. Prod., 2. p. 13.; Don's Mill., 2. p. 16
*Synonymes.* *A*quifólium *Tourn. Inst.* t. 371., *Gært. Fruct.* 2. t. 92.; Houx, *Fr.*; Stechpalme, or Heilse, *Ger.*; Ilice, *Ital.*
*Derivation.* Theophrastus, and other Greek authors, named the holly Agria; that is, wild, or of the fields; and the Romans formed from this the word Agrifolium; and called it, also, Aquifolium, from *acutum*, sharp, and *folium*, a leaf. C. Bauhin and Loureiro first named it *I*lex, on account of the resemblance of its leaves to those of the Quércus *I*lex, the true Ilex of Virgil. Linnæus adopted the name of *I*lex for the genus, and preserved the name of *A*quifólium for the most anciently known species. The name of Holly is, probably, a corruption of the word holy, as Turner in his *Herbal* calls it Holy, and Holy Tree; probably from its being used to commemorate the holy time of Christmas, not only in houses, but in churches. The German name Christdorn, the Danish name Christorn, and the Swedish name Christtorn, seem to justify this conjecture.

*Gen. Char.* *Calyx* 4—5-toothed, permanent. *Corolla* 4—5-cleft, subrotate. *Stamens* 4—5, alternating with the segments of the corolla. *Ovary* sessile. *Stigmas* 4. *Berry* containing 4—5 1-seeded nuts. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, mostly evergreen; ovate, oval, or ovate-lanceolate, coriaceous, serrated, toothed, or quite entire. *Flowers* axillary, aggregate, small, generally white. *Fruit* a drupe, mostly red.—Low trees and shrubs, chiefly evergreen, natives of Europe, North America, and the Himalayas, generally of slow growth, and of long duration. Loamy soil, rather dry than moist.

A. *Leaves spiny-toothed.*

♀ 1. *1.* AQUIFO'LIUM *L.* The prickly-leaved, *or common*, Holly.

*Identification.* Lin. Sp., 181.; Fl. Dan., 508.; Dec. Prod., 2. p. 14.; Don's Mill., 2. p. 10.
*Synonymes.* The holly, being a native of most parts of Europe, and being every where much admired, has several names in most living European languages: Hulver, Hulfere, and Holme, *Eng.*; Le Houx, *Fr.*; Stechpalme, Stechlaub, Hulse, Christdorn, Mausdorn, Kleezebusch, *Ger.*; Schubbig hardkelk, *Dutch*; Stikpalme, *Danish*; Jernek, Christtorn, *Swedish*; Waefoseheld, Ostrokof, Padub, *Russ.*; Agrifolio, *Ital.*; Acebo, *Span.*; Azevinho, *Port.*
*Engravings.* Smith Eng. Bot, t. 496.; the plate of the species in Arb. Brit, 1st edit., vol. v.; and our *fig.* 215.

*Spec. Char., &c.* Leaves oblong, shining, wavy, spiny-toothed. Peduncles axillary. Flowers nearly umbellate. A handsome, conical, evergreen tree. Europe and Britain. Height 20 ft. to 30 ft. in a wild state; and

215. *I'lex Aquifòlium.*

twice that height, or upwards, in a state of cultivation. Flowers white; May. Fruit red; ripe in September, and remaining on the tree all the winter. The lower leaves are very spinous; while the upper ones, especially on old trees, are entire. Decaying leaves yellow, dropping in June or July.

*Varieties.* In general the variegation of plants, more especially of trees and shrubs, is accompanied by a ragged, or otherwise unhealthy, appearance in the leaves; but the holly is one of the very few exceptions to this rule. The variegations of the holly are chiefly confined to the modification of white and yellow in the leaves: but there are some sorts in which the variation results from the state of the leaves with reference to prickles, to magnitude, and to form; and others consist of differences in the colour of the fruit, which is red, yellow, or white, and black. These varieties are, for the most part, without names, and those in the following groups appear to us to be all that are truly distinct; but the shades of difference under each name in these groups are almost innumerable.

a. *Varieties designated from the Form, Magnitude, Thickness, Surface or Margin of the Leaf.*

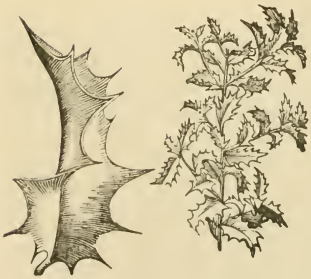
♀ I. A. 2 *heterophýllum* Hort. — Leaves variously shaped.
♀ I. A. 3 *angustifòlium* Hort. — Leaves narrow.
♀ I. A. 4 *latifòlium* Hort. — Leaves broad. Shoots dark purple. There is a fine specimen at Elvaston Castle, where it is called the Water Holly.
♀ I. A. 5 *altaclerénse* Hort. The High Clere Holly. — Leaves broad, thin, and flat.
♀ I. A. 6 *marginàtum* Hort. (*fig.* 216.) — Leaves without prickles, coriaceous, nearly as broad as long, and with a thickened margin.

216. *I. A.* marginàtum.

217. *I. A.* laurifòlium.

218. *I. A.* ciliàtum.

♀ I. A. 7 *laurifòlium* Hort. (*fig.* 217.) — Leaves small, oval-lanceolate without prickles, about the size and shape of those of *Laúrus* nóbilis.
♀ I. A. 8 *ciliàtum* Hort. (*fig.* 218.) — Leaves oval-acuminate, small; the prickles along the margins like hairs.
A. 9 *ciliàtum minus* Hort. — Leaves thinner and smaller than in the preceding variety.
A. 10 *recúrvum* Hort. (*fig.* 219.) — Leaves recurved.


219. Ilex Aquifòlium recúrvum

220. Ilex Aquifolium serratifolium

♀ I. A. 11 *serratifòlium* Hort. (*fig.* 220.) — Leaves serrated.
♀ I. A. 12 *críspum* Hort. — Leaves curled.
♀ I. A. 13 *ferox* Hort. Hedgehog Holly; Houx-hérisson, *Fr.* (*fig.* 221.) — The disk of the leaf has its edges rolled back; and a somewhat

221. I. A. fèrox.

cylindrical figure is hence given to it; and, as the surface abounds in prominences and prickles, it has a curious appearance, not unaptly compared to that of a hedgehog.

♀ I. A. 14 *crassifòlium* Hort. (*fig.* 222) — Leaves thick and fleshy.

♀ I. A. 15 *senéscens* Sweet. — Leaves spineless, thin.

All these varieties may be seen in Messrs. Loddiges's collection, and it is no small proof of their value for town gardens, that they thrive in the smoky atmosphere of that magnificent establishment.

222. I. A. crassifòlium.

b. *Varieties designated from the Colours of the Leaf.*

Under the general name of variegated hollies, twenty or thirty varieties, some of them with, and some of them without, popular names, are obtainable in the principal London nurseries. Having examined and compared the different shades of variegation in the plants in the very complete collection of Messrs. Loddiges, we think they may be all included in the following groups: —

♀ I. A. 16 *álbo-marginàtum* Hort. — Leaves with white edges. Of this variety the subvarieties in Loddiges's arboretum are marked 5, 15, 18, and 24, which have all long and narrow leaves, with edgings of white or pale yellow along their margins; and 4, 6, 7, 12, 17, 22, 23, and 28, which have larger leaves, and a greater breadth of margin variegated; the white or pale yellow forming in some cases one third, or even one half, of the surface of the leaf.

♀ I. A. 17 *aúreo-marginàtum* Hort. — Leaves with yellow edges. The following subvarieties are in Messrs. Loddiges's arboretum, Nos. 19 and 20 with dark yellow margins; and Nos. 1, 2, 8, 9, 10, 13, and 29, with margins of dark and light yellow. Another subdivision of this group consists of plants with broad leaves, in what may be called a transition state from green to variegated, viz., with greenish yellow or very pale green blotches or margins. When such plants become old, they are generally very distinctly variegated with yellow. Examples in the Hackney arboretum are Nos. 3, 20, and 21.

♀ I. A. 18 *álbo-píctum* Hort. — Leaves spotted with white. This variety has a considerable portion of the centre of the disk of the leaf white, and of a somewhat transparent appearance; the edges of the disk of the leaf being green.

♀ I. A. 19 *aúreo-píctum* Hort. — Leaves spotted with yellow. The following subvarieties are in Messrs. Loddiges's arboretum. Nos. 11, 14, 16, 26, 27, and 30.

♀ I. A. 20 *fèrox argénteum* Hort. — The hedgehog holly with leaves blotched with white.

♀ I. A. 21 *fèrox-aúreum* Hort. — The hedgehog holly with leaves blotched with yellow.

c. *Varieties designated from the Colour of the Fruit.*

♀ I. A. 22 *frúctu lùteo* Hort. — Fruit yellow.

♀ I. A. 23 *frúctu álbo* Hort. — Fruit white.

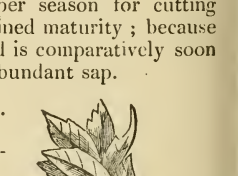
♀ I. A. 24 *frúctu nìgro* Hort. — Fruit black.

The holly makes the most impenetrable and the most durable of all vege-

table fences; and it has this great advantage over deciduous-leaved trees and shrubs, that it is seldom liable to be attacked by insects; and, if shorn, the outer surface becomes impenetrable even to birds, who cannot build their nests in it. The wood is almost as white as ivory, except in the centre of very old trunks, where it is somewhat brown. It is very hard, with a fine grain, susceptable of a high degree of polish, and is readily stained with black, green, blue, or red. It weighs, when dry, at the rate of 47 lb. 7 oz. per cubic foot. The veins of the wood, and its annual layers, are so small as scarcely to be perceptible. It is applied to a great many purposes, in joinery, cabinet-making, and turnery; in engineering, in mathematical-instrument-making; and it is even used for wood-engraving. The bark affords birdlime, which is prepared by boiling and evaporation. The holly attains the largest size in a rich sandy loam; but it will grow, and even thrive, on almost any soil, provided it is not overcharged with moisture. As its seeds, like those of the hawthorn, do not come up the first year, to save ground and the expense of weeding, the berries are commonly buried in the soil, or kept mixed up in a heap of earth for one year; after which, if sown in autumn, they will come up the following June. The varieties are propagated by budding and grafting. These operations are performed at the usual times, and in the usual manner; but it has been observed by Tschoudi, that cleft-grafting does not succeed nearly so well with the holly as whip-grafting or budding. In England, the stocks budded or grafted on are generally of four or five years' growth; and the grafting is effected in March, and the budding in July. The variegated kinds are also propagated by cuttings, which are made in autumn, of the ripened summer shoots. They are planted in sandy soil, in a shady border, and covered with hand-glasses; and they generally put forth roots the following spring. Holly hedges should never be clipped, because, when the leaves are cut through the middle, they are rendered unsightly; and the shoots should therefore be cut with a knife close to a leaf. The proper season for cutting would appear to be just after the leaves have attained maturity; because at that season, in the holly, as in the box, the wound is comparatively soon obliterated by the healing over produced by the still abundant sap.

♀ 2. *I.* (*A.*) BALEA'RICA *Desf.* The Minorca Holly.

*Identification.* Desf. Arb., 2. p. 262.; Don's Mill., 2. p. 17.
*Synonymes.* *I. Aquifolium* var. *δ Lam. Dict.* 3. p. 145.; *I.* maderensis *Willd. Enum. Suppl.* 8. according to Link.
*Engraving.* Our *fig.* 223.



223. *I.* (*A.*) baleárica

*Spec. Char., &c.* Leaves ovate, acute, flat, shining, entire or spiny-toothed. Umbels axillary, few-flowered, short. (*Don's Mill.*) An evergreen low tree. Minorca and Madeira. Height 10 ft. to 20 ft. in England; in Madeira 60 ft. to 80 ft. Introduced in 1744. Flowers white; May and June. Drupe scarlet; ripe in December. Decaying leaves yellow, dropping in June and July.

A very distinct variety of the common holly, readily distinguished at sight, by its yellowish green leaves, which are sharply acuminated, but very slightly waved at the edges, and with few prickles. It is propagated by budding or grafting on the common holly.

♀ 3. *I.* OPA'CA *Ait.* The opaque-*leaved*, *or American*, Holly.

*Identification.* Ait. Hort. Kew, 1. p. 177.; Dec. Prod., 2. p. 14.; Don's Mill., 2. p. 17.
*Synonymes.* *Agrifolium* vulgare *Clayt. Flor. Virgin.*; *Ilex Aquifolium Gronov* and *Walt. Fl. Car.* 241.; dunkelblättrige Stechpalme, *Ger.*; Agrifolio a Foglie di Quercia, *Ital.*
*Engravings.* The plate of the species in Arb. Brit., 1st edit., vol. v.; and our *fig.* 224

*Spec. Char., &c.* Leaves ovate, flat, coriaceous, acute, toothed in a scalloped manner, spiny, and glabrous, but not glossy. Flowers scattered, at the base of only those branches that are a year old. Teeth of the calyx acute. Sexes diœcious. (*Dec. Prod.*) A beautiful evergreen low tree. Canada

to Carolina. Height in England 10 ft. to 20 ft.; in Carolina 60 ft. to 80 ft. Introduced in 1744. Flowers white; May and June. Drupe scarlet; ripe in December, remaining on the trees all the winter.

*Variety.*

ϒ I. o. 2 *laxiflòra*, *I.* laxiflòra *Lam.*, *I.* opàca var. *Nutt.*, has the flowers on loosely branched peduncles, and the drupe yellow. Introduced in 1811. Several other varieties are mentioned by Rafinesque.

224. *I'lex opàca.*

In America, this species is applied to all the uses which the common holly is in Europe. It forms hedges; is an ornamental tree or shrub in gardens; is employed for making birdlime; and the wood is used in turnery and cabinetmaking. Propagation as in the common holly.

225. *I. magellánica.*

*I'lex magellánica* (*fig.* 225.), of which there is a small plant in the Hort. Soc. Garden, promises to be a very handsome species, and tolerably hardy, as it stood the winter of 1837–8 against a wall.

B. *Leaves toothed, serrated, or crenate, but not spiny.*

✿ 4. *I. Peràdo* Ait. The Perado Holly.

*Identification.* Ait. Hort. Kew., 1. p. 169.; Don's Mill., 2. p. 17.
*Synonyme.* *I.* maderénsis *Lam. Dict.* 3. p. 146.
*Engravings.* N. Du Ham., v. t. 35.; Bot. Cab., t. 549.,; and our *fig.* 226.

*Spec. Char., &c.* Leaves ovate, with an entire acumen, or having very few teeth, shining. Umbels short, axillary, few-flowered. (*Don's Mill.*) An evergreen shrub. Madeira. Height in England 5 ft. to 10 ft. Introduced in 1760. Flowers white or reddish; May and June. Drupe large, red; ripe in October.

226. *I. Peràdo.*

Commonly treated as a green-house plant, but quite hardy in the Hort. Soc. Garden; where, and also in several other places, it stood the winter of 1837–8, without any protection, uninjured.

✿ 5. *I. CASSI'NE* Ait. The Cassine-*like, or broad-leaved Dahoon,* Holly.

*Identification.* Ait. Hort. Kew., 1. p. 170.; Dec. Prod., 2. p. 14.; Pursh Fl. Am. Sep. 1. p. 117.; Don's Mill., 2. p. 17.
*Synonymes.* Aquifòlium carolinénse *Catesb. Car.* 1. t. 31.; *I.* caroliniàna *Mill. Dict.* No. 3.; *I.* cassinòides *Link Enum.* 1. p. 148.; the Cassena of the American Indians, *Rafin.*
*Engravings.* Catesb. Car., 1. t. 31.; and our *fig.* 227.

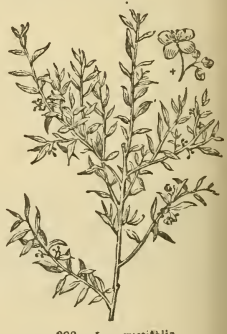
*Spec. Char., &c.* Leaves ovate-lanceolate, sharply serrated, flat; the midribs, petioles, and branchlets glabrous. The flowers upon lateral corymbosely branched peduncles. (*Dec. Prod.*) An evergreen shrub. Lower Carolina to Florida, in shady swamps. Height 6 ft. to 10 ft. Introduced in 1700. Flowers white; August. Drupe red; ripe in December.

227 *Ilex Cassine.*

The fruit is rather smaller than that of the common holly; it continues on the trees the most part of the winter, untouched by birds; and, being of a bright red, and large in proportion to the leaves, which are about the size of those of the common arbutus, the plant makes a fine appearance, both in its native country and in England. Commonly propagated by seeds; but it will also strike by cuttings, or it may be grafted on the common holly.

♠ 6. *I.* ANGUSTIFO'LIA *Willd.* The narrow-leaved Holly.

*Identification.* Willd. Enum., 1. p. 172.; Dec. Prod., 2. p. 14.; Don's Mill., 2. p. 17.
*Synonymes.* *I. myrtifòlia Walt. Carol.* 241., *N. Duh.*, and *Lodd. Cat.*; *I. rosmarinifòlia Lam. Ill.* 1. p. 356.
*Engravings.* N. Du Ham., 1. t. 4.; and our *fig.* 228.



228. *I.* angustifòlia.

*Spec. Char., &c.* Leaves linear-lanceolate, sawed at the tip, rather revolute in the margin; the midrib, petiole, and branchlets glabrous. Flowers in stalked lateral cymes. (*Dec. Prod.*) An evergreen shrub. Height 6 ft. to 10 ft. Virginia to Georgia, in swamps. Introduced in 1806. Flowers white; June. Drupe globular and red; ripe in December.

A very handsome species, but not very common. There are plants of it at Messrs. Loddiges, and in the H. S. Garden, under the name of *I. myrtifolia.*

♀ 7. *I.* VOMITO'RIA *Ait.* The emetic Holly, *or South Sea Tea.*

*Identification.* Ait. Hort. Kew., 1. p. 278.; Dec. Prod., 2. p. 14.; Don's Mill., 2. p. 17.
*Synonymes.* *I. Cassìne* vèra *Walt. Carol.* 241.; *I. ligústrina Jacq. Coll.* 4. p. 105., *Icon. Rar.* t. 310., *Wendl. Hort.* t. 31.; *Cassìne Perāgua* Mill. Icon. t. 83. f 2; *I. Cassèna* Michx. Fl. 1. p. 229.; *I.* religiòsa *Bart. Fl. Virg.* 69.; *I.* floridàna *Lam. Ill.* No. 1731.; Houx apalachine, *Fr.*; true Cassene, Cassena, *Florida*; the Yapon, *Virginia*; the evergreen Cassena, or Cassioberry Bush, *Eng.*
*Engravings.* Jacq. Icon. Rar., t. 310.; Wendl. Hort., t. 31.; Mill. Icon., t. 83. f. 2.; and our *fig.* 229.

229. *Ilex* vomitòria.

*Spec. Char., &c.* Leaves oblong or elliptic, obtuse at both ends, crenately serrated, and, with the branchlets, glabrous. Flowers in subsessile lateral umbels. (*Dec. Prod.*) An evergreen low tree. Carolina to Florida, along the sea coast. Height 10 ft. to 12 ft. Introduced in 1700. Flower white; June and July. Drupe red, like that of the common holly; ripe in December.

Not very common in British collections; but there are plants of it in Loddiges's arboretum, and in the garden of the Hort. Soc.

C. *Leaves quite entire, or nearly so.*

♀ ♠ 8. *I.* DAHOO'N Wall. The Dahoon Holly.

*Identification.* Wait. Fl. Carol., 241.; Dec. Prod., 2. p. 14.; Don's Mill., 2. p. 17.
*Synonyme.* *I. Cassine* Willd. Hort. Berol. 1. t. 31

*Engravings.* Willd. Hort. Berol., t. 31., under the name of *I. Cassìne*; our *fig.* 230. from a plant in Loddiges's arboretum, and *fig.* 231. from the Hort. Berolin.

*Spec. Char., &c.* Leaves lanceolately elliptical, nearly entire, almost revolute in the margin; the midrib, petiole, and branchlets villous. Flowers disposed in corymbose panicles, that are upon lateral and terminal peduncles. (*Dec. Prod.*) A beautiful evergreen shrub or low tree. Carolina to Florida, in swamps. Height 8 ft. to 10 ft. Introduced in 1726. Flowers white; May and June. Drupe red; ripe in December.

The leaves of this species are very numerous, and resemble those of *Laúrus Borbònia.* The plant is rare in British gardens, and seldom ripens

230. *I`lex Dahoón.*

231. *I`lex Dahoón.*

fruit. It is most commonly kept in green-houses or pits: but there was a plant in 1836 in the open air, in the Mile End Nursery, which was 20 ft. high, with a head 30 ft. in diameter; and which had stood there many years, without the slightest protection.

*Other Species of I`lex* are described by authors as natives of North America and Nepal, some of which are introduced, and may probably be found hardy, but we can state nothing with certainty respecting them. In this genus, as in most others containing numerous species which are not in general cultivation, there is a great deal of uncertainty. *I. Cassìne, I.* vomitòria and *I. Dahoón* are probably the same species.

## Genus III.

### *PRI`NOS L.* The Prinos, *or Winter Berry. Lin. Syst.* Hexándria Monogýnia, or Polygàmia Diœ`cia.

*Identification.* Lin. Gen., No. 461.; Dec. Prod., 2. p. 16.; Don's Mill., 2. p. 20.
*Synonymes.* Agèria *Adans. Fam.* 2. p. 166.; Apalanche, *Fr.*; Winterbeere, *Ger.*
*Derivation.* From *prinos*, the Greek name for the holly, which the present genus much resembles; or, according to others, from *prion*, a saw, on account of the serrated leaves of the species.

*Gen. Char. Flowers* 6-cleft, hexandrous; usually diœcious, or polygamous from abortion. *Fruit* with 6 nuts. In other respects the character is the same as that of *I`lex.* (*Don's Mill.*)

*Leaves* simple, axillary, exstipulate, deciduous or evergreen; oval or lanceolate, entire or serrated; dying off of a greenish yellow. *Flowers* on axillary pedicels, usually single, small, mostly white.— Shrubs, evergreen and deciduous; natives of North America.

In habit of growth the species are all more or less fastigiate, and send up numerous suckers from the collar; but, if these were removed, the plants

would form neat miniature trees. Propagated by suckers, or by cuttings of the young wood in sand under a glass, or by seeds. Common soil, kept moist. There is a close general resemblance among all the deciduous species, which leads us to doubt whether they are any thing more than varieties.

## § i. *Prinoìdes* Dec.

*Sect. Char.* Flowers usually 4—5- sometimes 6-cleft. (*Dec. Prod.*, ii. p. 16.) Leaves deciduous.

### ♃ 1. *P.* DECI'DUUS *Dec.* The deciduous Winter Berry.

*Identification.* Dec. Prod., 2. p. 16.; Don's Mill., 2. p. 20.
*Synonymes.* *I*'lex prinoìdes *Ait. Hort. Kew.* 2. p. 278.; *I*'lex decidua *Walt. Fl. Carol.* 241.
*Engraving.* Our *fig.* 232. from a plant in the Hort. Soc. Garden.

232. *Prinos deciduus.*

*Spec. Char., &c.* Leaves deciduous, elliptic-lanceolate, tapered to the petiole, shallowly serrated; the midrib villous beneath. Peduncles axillary; those of the male flowers several together; of the female ones, singly. Berries red. (*Dec. Prod.*) A deciduous shrub. Virginia to Georgia, on rocky shady banks of rivers. Height 3 ft. to 5 ft. Introduced in 1736. Flowers white; June and July. Berries large, crimson; ripe in December.

Plants of this species are in Loddiges's nursery, under the name of *I*'lex *prinoìdes*.

### ♃ 2. *P.* AMBI'GUUS *Michx.* The ambiguous Winter Berry.

*Identification.* Michx. Fl. Bor. Amer., 2. p. 236.; Dec. Prod., 2. p. 17.; Don's Mill., 2. p. 20.
*Synonyme.* *Cassìne* carolinìàna *Walt. Fl. Carol.* p. 242.
*Engravings.* Wats. Dend. Brit., t. 29.; and our *fig.* 233.

233. *P.* ambiguus.

*Spec. Char., &c.* Leaves deciduous, oval, acuminate at both ends; both adult ones and young ones glabrous in every part. Peduncles of the male flowers crowded together in the lower parts of the branchlets; of the female ones, singly. (*Dec. Prod.*) A deciduous shrub. New Jersey to Carolina, in wet sandy woods. Height 4 ft. to 5 ft. Introduced in 1812. Flowers white; June to August. Berries red; ripe in November.

The leaves are subimbricate, serrated, acute at the apex, and the berries small, round, smooth, and red. There is a handsome plant of this species in the arboretum of Messrs. Loddiges, which, in 1835, was 5 ft. high. It is of easy culture in any free soil; and is propagated by seeds, cuttings, or layers.

## § ii. *Agèria* Dec.

*Sect. Char.* Flowers usually 6-cleft. Leaves deciduous. (*Dec. Prod.*, ii. p. 17.)

### ♃ 3. *P.* VERTICILLA'TUS *L.* The whorled Winter Berry.

*Identification.* Lin. Spec., 471.; Dec. Prod., 2. p. 17.; Don's Mill., 2. p. 20.
*Synonymes.* *P.* padifòlius *Willd. Enum.* p. 394.; *P.* Gronòvii Michx. Fl. Bor. Amer. 2. p. 236.; *P.* confèrtus *Mœnch*; *P.* prunifòlius *Ledd. Cat.*

*Engravings.* Wats. Dend. Brit., t. 30.; Duh. Arb., 1. t. 23.; our *fig.* 234. in flower, and *fig.* 235. from the Hort. Soc. Garden.

234. *Prinos verticillatus.*

*Spec. Char., &c.* Leaves deciduous, oval, acuminate, serrated, pubescent beneath. Male flowers in axillary umbel-shaped fascicles; the female ones aggregate, the flowers of both sexes 6-parted. (*Dec. Prod.*) A deciduous shrub. Canada to Virginia, in wet woods. Height 6 ft. to 8 ft. Introduced in 1736. Flowers white; June to August. Berries red or crimson, turning purple; ripe in November.

235.

There are two handsome plants of this species in Loddiges's arboretum, 7 ft. high, one of which is under the name of *P. prunifolius.*

4. *P.* LÆVIGA'TUS *Pursh.* The smooth-*leaved* Winter Berry.

*Identification.* Pursh Fl. Sept. Amer., 1. p. 220.; Dec. Prod., 2. p. 17.: Don's Mill., 2. p. 20.
*Engravings.* Wats. Dend. Brit., t. 28.; and our *fig.* 236.

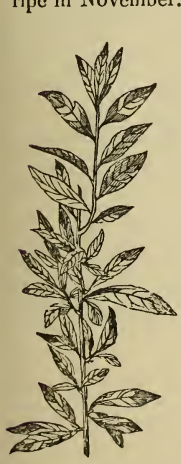
*Spec. Char., &c.* Leaves deciduous, lanceolate, serrated, the teeth directed forwards, acuminate; glabrous on both surfaces, except on the nerves beneath, where they are slightly pubescent; upper surface glossy. Flowers 6-cleft; the male ones scattered; the female ones axillary, solitary, almost sessile. (*Dec. Prod.*) A deciduous shrub. New York to Virginia, on the Alleghany Mountains. Height 6 ft. to 8 ft. Introduced in 1812. Flowers white; July. Berries large, dark red; ripe in November.

236. *Prinos lævigatus.*

The plant of this species in Loddiges's arboretum was 4 ft. high in 1835. Readily distinguished by its somewhat more succulent leaves and shoots, the latter, when young, tinged with dark purple.

5. *P.* LANCEOLA'TUS *Pursh.* The lanceolate-*leaved* Winter Berry.

*Identification.* Pursh Fl. Sept. Amer., 2. p. 27.; Dec. Prod., 2. p. 17.; Don's Mill., 2. p 20.
*Synonymes.* *P.* canadénsis *Lyon*; *P.* lùcidus *Hort.*
*Engraving.* Our *fig.* 235. from a plant in the Hort. Soc. Garden.



237. *Prinos lanceolatus.*

*Spec. Char., &c.* Leaves deciduous, lanceolate, remotely and very slightly serrulate, smooth on both surfaces. Male flowers aggregate, triandrous; female ones mostly in pairs, peduncled, and 6-cleft. (*Dec. Prod.*) A deciduous shrub. Carolina to Georgia, in low grounds. Height 6 ft. to 8 ft. Introduced in 1811. Flowers white; June and July. Berries small, scarlet; ripe in November.

The plant in Loddiges's arboretum is 8 ft. high.

## § iii. *Wintérlia* Mœnch.

*Sect. Char.* Flowers, for the most part, 6-cleft. Leaves permanent. (*Dec. Prod.*, ii. p. 17.)

### 6. *P.* GLA'BER *L.* The glabrous Winter Berry.

*Identification.* Lin. Spec., 471.; Dec. Prod., 2. p. 17.; Don's Mill., 2. p. 20.
*Synonyme.* Ink berry, *Amer.*
*Engraving.* Our *fig.* 238. from nature. The figure under this name in Wats. Dend., t. 27., is that of *P.* coriàceus *Pursh.*

*Spec. Char., &c.* Evergreen. Leaves lanceolate, with wedge-shaped bases, coriaceous, glabrous, glossy, somewhat toothed at the tip. Flowers mostly three on an axillary peduncle that is usually solitary. Fruit black. (*Dec. Prod.*) An evergreen shrub. Canada to Florida, in shady woods. Height 3 ft. to 5 ft. Introduced in 1759. Flowers white; July and August. Berries black; ripe in November.

238. *Prìnos glàber.*

A low but very handsome evergreen shrub, which, in its native country, makes a fine show, when covered with its black berries. In Loddiges's arboretum it has attained the height of 4 ft., with a regular ovate shape, densely clothed with shining foliage.

### 7. *P.* CORIA'CEUS *Pursh.* The coriaceous-*leaved* Winter Berry.

*Identification.* Pursh Fl. Sept. Amer., 1. p. 221.; Dec. Prod., 2. p. 17.; Don's Mill., 2. p. 21.
*Synonyme.* *P.* glàber *Wats.*
*Engravings.* Wats. Dend. Brit., t. 27., and Bot. Cab., 450., under the name of *P.* glàber; and our *fig.* 239.

*Spec. Char., &c.* Evergreen. Leaf lanceolate, with a wedge-shaped base, coriaceous, glabrous, glossy, entire. Flowers in short, sessile, axillary corymbs, many in a corymb. (*Dec. Prod.*) A handsome, tall, evergreen shrub. Georgia, in sandy woods near the banks of rivers. Height 8 ft. to 10 ft. Introduced in 1820. Flowers white; June and July. Berry black; ripe in November.

239. *Prìnos coriàceus.*

*Varieties.* This species varies, with leaves broader, obovate-lanceolate, and acuminate; and narrower, lanceolate, and acute. (*Dec. Prod.*) The broad-leaved variety appears to be that figured in *Lod. Bot. Cab.*, t. 450.

The general aspect of this plant is that of *Ilex Dahoón*. It is a handsome shrub, well deserving a place in collections.

*Other Species of* Prìnos. — P. *dúbius* G. Don. and P. *atomàrius* Nutt. have been introduced, and, probably, some others; but we have only noticed those of which we have seen living plants, and which we consider to be tolerably distinct, though there are probably only three species of *Prìnos*; two of which are deciduous, and the other evergreen.

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## ORDER XXII. *RHAMNA'CEÆ.*

*ORD. CHAR.* *Calyx* 4—5-cleft; æstivation valvate. *Corolla* of 4—5 petals; in some absent. *Petals* cucullate, or convolute, inserted into the orifice of the calyx. *Stamens* 4—5, opposite the petals, perigynous. *Ovary* superior, or half-superior, 2-, 3-, or 4-celled, surrounded by a fleshy disk. *Ovules* one in a cell, erect, as are the seeds. *Fruit* fleshy and indehiscent, or dry and separating into 3 divisions.—Trees or shrubs, often spiny, and generally deciduous. (*Lindl.*)

*Leaves* simple, alternate, very seldom opposite, with minute stipules,

deciduous or evergreen. *Flowers* axillary or terminal. — Chiefly natives of Europe or North America.

They are ornamental in British gardens and shrubberies, chiefly from the variety of their foliage, and from their berries; but some of them, as *Ceanòthus*, from their flowers. They are all of easy culture; and they are propagated by seeds, cuttings, or layers. The hardy genera in British gardens are six; which are characterised as follows: —

ZI'ZYPHUS *Tourn.* Petals 5. Styles 2—3. Fruit an ovoid mucilaginous drupe. Nuts 1—3-celled. Seed compressed. A deciduous low tree or shrub.

PALIU'RUS *Tourn.* Petals 5. Styles 3. Fruit dry, indehiscent, girded with a broad membranaceous wing, 3-celled. Seed ovate. Spiny shrubs.

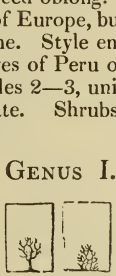
BERCHE'MIA Necker. Petals 5. Style 1. Stigmas 2. Fruit an oblong dry drupe; the nut 2-celled. A twining deciduous shrub from Carolina.

RHA'MNUS *Lam.* Petals in some absent. Style 2—4-cleft. Fruit nearly dry, or berried, 2—4-celled. Seed oblong. Shrubs or small trees, deciduous or evergreen; chiefly natives of Europe, but some of N. America and Asia.

COLLE'TIA Comm. Corolla none. Style ending in 3 teeth. Fruit a 3-celled capsule. Spiny shrubs; natives of Peru or Chile.

CEANO'THUS *L.* Petals 5. Styles 2—3, united. Fruit a dry berry, 3-celled, rarely 2—4-celled. Seed ovate. Shrubs, evergreen or deciduous, from North America.

## GENUS I.



ZI'ZYPHUS *Tourn.* THE JUJUBE. *Lin. Syst.* Pentándria Di-Trigýnia.

*Identification.* Tourn. Inst., t. 403.; Gært. Fruct., 1. p. 43; Lam. Ill., t. 185.; Dec. Prod., 2. p. 198.; Brongn. Mém. Rham., p 47.
*Synonymes.* Jujubier, *Fr.*; Judendorn, *Ger.*; Giuggiolo, *Ital.*
*Derivation.* From *zizouf*, the Arabic name of the lotus.

*Gen. Char. Calyx* spreading, 5-cleft. *Petals* 5, obovate, unguiculate, convolute. *Stamens* 5, exserted. *Anthers* ovate, 2-celled. *Disk* flat, pentagonal, expanded, adhering to the tube of the calyx. *Ovary* 2—3-celled, immersed in the disk. *Styles* 2—3. *Fruit* fleshy, containing a 1—2-celled nut. (*Don's Mill.*, 2. p. 23.)

*Leaves* simple, alternate, stipulate, deciduous; 3-nerved. *Flowers* axillary. — Only one hardy species. A low tree or shrub from Syria.

♃ 1. *Z.* VULGA'RIS *Lam.* The common, *or cultivated*, Jujube.

*Identification.* Lam. Ill., 185. f. 1.; Dec. Prod., 2. p. 19.; Don's Mill., 2. p 23.
*Synonymes.* Rhámnus Zízyphus *Lin. Spec.* 282., *Pall. Fl. Ross.* 2. t. 59.; *Z.* sativa *Desf. Arb.* 2. p. 373., *N. Du Ham.* t. 16., but not of Gært.; *Z. Jujuba* Mill. Dict. No. 1., but not of Lam.; Jujubier cultivé, *Fr*; Brustbeeren, *Ger.*; Giuggiolo, *Ital.*
*Engravings.* Lam. Ill., 185. f. 1.; N. Du Ham., 3. t. 16.; and our *fig.* 240.

*Spec. Char., &c.* Branchlets glabrous. Leaves ovate, retuse, denticulate, glabrous; or, beneath, pubescent along the nerves. Prickles not any, or twin, one of them recurved. Drupe ovate-oblong. (*Dec. Prod.*) A deciduous tree. The South of Europe and Syria. Height in the South of Europe 20 ft. to 30 ft.; and in England 5 ft. to 10 ft. Introduced in 1640. Flowers greenish yellow; August and September. Fruit blood-red or saffron; rarely seen in England.

Stem thick, cylindrical, somewhat twisted. The bark is brown, and rather chapped. The branches are numerous, pliant, armed with prickles, zigzag in their direction; the prickles at the joints being two of unequal size, of which one is almost straight, and the other shorter and quite straight. The leaves are alternate and oval-oblong, somewhat hard and coriaceous. The flowers are small, axillary, of a pale yellow colour, with short peduncles. The fruit

is oval-oblong, resembling that of the olive; at first green, afterwards yellow, and entirely red when ripe. The juice of the fruit is used for making the jujube lozenges. The plant is tolerably hardy; having stood the winter of 1837-8 in the Hort. Soc. Garden. It is easily increased by cuttings of the roots, whether of young or old trees; or by suckers, which it throws up in the greatest abundance. Seeds of it may also be procured from Italy.

240. Zizyphus vulgàris.

*Other Species of Zízyphus.*—Z. *sinénsis* Lam. has been cultivated in the Hort. Soc. Garden but it is only half-hardy; and the same may be said of Z. *spìna Chrísti*, Z. *flexuòsa*, and Z. *incúrva*, which are marked in some catalogues as hardy.

## Genus II.

### PALIU'RUS *L.* The Paliurus, *or Christ's Thorn. Lin. Syst.* Pentándria Trigýnia.

*Identification.* Tourn. Inst., t. 386.; D. Don Prod. Fl. Nep., p. 189.; Dec. Prod., 1. p. 22.; Don's Mill., 2. p. 23.; Brongn. Mém. Rham., p. 46.
*Synonymes.* Paliùre, Porte-chapeau, *Fr.*; Judendorn, *Ger.*; Paliuro, *Ital.*
*Derivation.* From *pallō*, to move, and *ouron*, urine; in allusion to its diuretic qualities; or from Paliurus, the name of a town in Africa, now called Nabil.

*Gen. Char.* *Calyx* spreading, 5-cleft. *Petals* 5, obovate, convolute. *Stamens* 5, protruding. *Anthers* ovate, 2-celled. *Disk* flat, pentagonal. *Ovary* 3-celled. *Styles* 3. *Fruit* dry, indehiscent, expanding into a membrane round the disk, containing a 3-celled nut. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous; nerved with spines in the axils. *Flowers* axillary, greenish yellow.

Two species are hardy, and very ornamental from their shining leaves, and abundance of rich greenish yellow flowers, which are succeeded by fruit of rather a singular form. Propagated by seeds, which they produce in England, in abundance.

♈ ♋ 1. *P.* ACULEA'TUS *Lam.* The prickly Paliurus, *or Christ's Thorn.*

*Identification.* Lam. Ill., t. 210.; Fl. Fr., ed. 3., No. 4081.; N. Du Ham., 3. t. 17.; Don's Mill., 2. p. 23.
*Synonymes.* *P.* pétasus *Dum. Cours.* 6. p. 266.; *P.* austràlis *Gært. Fruct.* 1. t. 43. f. 5.; *P.* vulgàris *D. Don Prod. Fl. Nep.* 189.; *Rhámnus Paliùrus Lin. Spec.* 281.; *Zízyphus Paliùrus Willd. Spec.* 1. p. 1183., *Sims Bot. Mag.* t. 1893.; Christ's Thorn, or Ram of Libya, *Gerard*; E'pine de Christ, Argalon, Porte-chapeau, *Fr.*; geflügelter Judendorn, *Ger.*; Giuggolo salvatico, *Ital.*; Xlin, in the herb-shops of Constantinople, where the seeds are sold as a medicine, and as a yellow dye.
*Engravings.* Lam. Ill., t. 210.; N. Du Ham., 3. t. 17.; Bot. Mag., t. 1893.; the plates of this species, both in a young and an old state, in Arb. Brit., 1st edit., vol. v.; and our *fig.* 241.

*Spec. Char., &c.* Branchlets pubescent. Leaves ovate, serrulated, quite smooth, 3-nerved, with two spines at the base, one straight, the other recurved. Flowers in axillary crowded umbellules; few in an umbellule. Wing of capsule crenated. (*Don's Mill.*) A branching deciduous shrub, or low tree. South of Europe, and North and West of Asia. Height 15 ft. to 30 ft. Introduced in 1596. Flowers greenish yellow; June and July. Fruit yellow; ripe in September.

The fruit is buckler-shaped, flat and thin, but coriaceous. From the singular appearance of this fruit, which has the footstalk attached to the middle, which is raised ike the crown of a hat; and the flattened disk, which re-

241. Paliùrus aculeàtus.

sembles its brim; the French have given this tree the name of *porte-chapeau.* On both shores of the Mediterranean, it grows to about the same height as the common hawthorn, on rocky sterile places. In many parts of Italy the hedges are formed of this plant, as they are of the hawthorn in Britain; it is also the common hedge plant in Asia. Any common soil; seeds, or cuttings of the root.

2. *P.* (A.) VIRGA'TUS *D. Don.* The twiggy Christ's Thorn.

*Identification.* D. Don in Bot. Mag.; and Fl. Nep., 189.; Don's Mill., 2. p. 23.
*Engravings.* Bot. Mag., t. 2535.; and our *fig.* 242.

*Spec. Char., &c.* Branches smooth. Leaves obliquely cordate, or elliptical, 3-nerved, shining; wing of fruit entire. (*G. Don.*) A deciduous shrub. Nepal, on mountains. Height 10 ft. to 15 ft. Introduced in 1819. Flowers greenish yellow, in axillary corymbs; July and August. Fruit yellow; ripe in September.

242. Paliùrus virgàtus.

The only tree which we have seen of this species is in the Chelsea Botanic Garden, where in general aspect it bears a close resemblance to *P.* aculeàtus, of which it is in all probability only a variety.

## GENUS III.

BERCHE'MIA Neck. THE BERCHEMIA. *Lin. Syst.* Pentândria Monogýnia.

*Identification.* Neck. Elem., 2. p. 122.; Dec. Prod., 2. p. 22.; Brongn. Mém. Rham., 49.; Don's Mill., 2. p. 27.
*Synonyme.* Œnóplia *Hedw. F. Gen.* 1. p. 151., and *Schult. Syst.* 5. p. 962.
*Derivation.* From *Berchem*, probably the name of some botanist.

*Gen. Char. Calyx* with a hemispherical tube, and 5 erect segments. *Petals* 5, convolute. *Stamens* included within the petals. *Anthers* ovate, 2-celled.

*Disk* annular, rather flat. *Ovary* half-immersed in the disk, 2-celled. *Style* short, bifid at the apex. *Fruit* dry, indehiscent, 2-celled. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous; nerved. *Flowers* terminal, diœcious by defect; small, greenish yellow. — A twining deciduous shrub; a native of Carolina; of easy culture in any common soil, and propagated by seeds, or cuttings of the root.

### ♃ 1. B. VOLU'BILIS *Dec.* The twining Berchemia.

*Identification.* Dec. Prod., 2. p. 22.; Don's Mill., 2. p. 27
*Synonymes.* Rhámnus volùbilis *Lin. fil. Suppl.* 132., *Jacq. Icon. Rar.* t. 336.; Zizyphus volùbilis *Willd. Spec.* 1. p. 1102.; Œnóplia volùbilis *Schult. Syst.* 5. p. 332.; Supple Jack, *Virginian.*
*Engravings.* Jacq. Icon. Rar., t. 336.; our *fig.* 243. in flower, and *fig.* 244. in fruit, from nature.

*Spec. Char., &c.* Branches glabrous, rather twining. Leaves oval, mucronate, somewhat waved. Flowers diœcious. Drupes oblong. (*Dec. Prod.*) A deciduous twining shrub. Carolina and Virginia, in deep swamps. Height, in America, 20 ft. to 50 ft.; in British gardens, 8 ft. to 10 ft. Introduced in 1714. Flowers greenish yellow; June and July. Fruit violet-coloured; ripe in October.

According to Pursh, this species, in Virginia, ascends the highest trees, and is known by the name of Supple Jack. The stems twine round one another,

243. Berchèmia volùbilis.

244. Berchèmia volùbilis.

or any object which they may be near. In British gardens, they are seldom seen above 8 or 10 feet high; probably from little attention being paid to place the plant in a deep sandy or peaty soil, and to supply it with abundance of moisture in the growing season. In fine seasons it ripens fruit.

## GENUS IV.

### RHA'MNUS *Lam.* THE BUCKTHORN. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Lam. Dict., 4. p. 461.; Lam. Ill., t. 128.; Gært. Fruct., 2. p. 106.; Dec. Prod., 2. p. 23.; Don's Mill., 2. p. 29.; Brongn. Mém. Rham., p. 53.
*Synonymes.* Nerprun, *Fr.*; Wegdorn, *Ger.*; Ramno, *Ital.*; the Ram, or Hart's, Thorne, *Gerard*; Box Thorn.
*Derivation.* From the Celtic word, *ram*, signifying a tuft of branches; which the Greeks have changed to *rhamnos*, and the Latins to *ramus*.

*Gen. Char.* *Calyx* urceolate, 4—5-cleft. *Stamens* bearing ovate 2-celled anthers. *Disk* thin, covering the tube of the calyx. *Ovary* free, 3—4-celled. *Styles* 3—4, connected or free. *Fruit* baccate, containing 3—4 indehiscent nuts. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous, sub-evergreen, or ever-

green; feather-nerved; the stipules never converted into prickles. *Flowers* axillary, aggregate, often unisexual. *Fruit* not eatable, generally black, rarely red or yellow.

Deciduous or evergreen shrubs, with the tips of their branches often becoming spines. One or two species have the habit of low trees, and some of them are sub-procumbent or procumbent; all of them, except the latter, being distinguished by an upright stiff mode of growth, and numerous strong thorns in their wild state; whence the name of ram, or buck, thorn. The flowers in all the species are inconspicuous; but *R. A*latérnus and its varieties are most valuable evergreen shrubs, and several of the other species are ornamental, both from their foliage and their fruit; the latter of which is also useful in dyeing. All the species are easily propagated by seeds or layers, and most of them by cuttings; and they will all grow in any soil that is dry. They all vary much in magnitude by culture, in common with most plants which, in a wild state, grow in arid soils.

## § i. *Marcorélla* Neck.

*Synonymes.* *R*hámnus and *A*latérnus of Tourn.

*Sect. Char.* Flowers usually diœcious, and 5-cleft. Fruit a berry, with 3 seeds, or, from abortion, 2 seeds. Seeds deeply furrowed, with the raphe in the bottom of the furrow. Leaves usually permanent; coriaceous, and glabrous. (*Dec. Prod.*, ii. p. 23.)

A. A*LATE'RNUS* Tourn. *Flowers racemose, 5-cleft. Evergreen Shrubs.*

1. *R. A*LATE'RNUS *L.* The Alaternus.

*Identification.* Lin. Spec., 281.; Dec. Prod., 2 p. 23.; Don's Mill., 2. p. 30.
*Synonymes.* *A*latérnus *P*hillýrea *Mill. Dict.* No. 1.; Alaterna, *Ital.*
*Derivation.* From *alternus*, a generic name adopted from Dioscorides, designating the alternate position of the leaves.
*Engravings.* Mill. Dict., t. 16. f. 1.; N. Du Ham., 3. p. 42. t. 14.; and our *fig.* 245.

245. *R*hámnus *A*latérnus

*Spec. Char., &c.* Leaves ovate-elliptical, or lanceolate, coriaceous, quite smooth, serrated. Flowers diœcious, disposed in short racemes. (*Don's Mill.*) An evergreen shrub. South of Europe and North of Africa. Height 10 ft. to 20 ft. Introduced in 1629. Flowers green, without any corolla; April to June. Berry black; ripe in October.

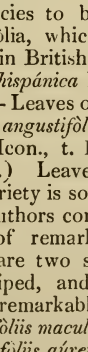
*Varieties.*

R. A. 2 *baleárica* Hort. Par. The *R*hámnus rotundifòlius of Dumont. — Leaves roundish. We take this as the first variety, assuming the species to be what is called *R. A.* latifòlia, which is the commonest variety in British nurseries.

R. A. 3 *hispánica* Hort. Par. (Our *fig.* 246.) — Leaves ovate, a little toothed.

R. A. 4 *angustifòlia. R.* Clùsii Willd. (Mill. Icon., t. 16. fig. 2.; and our *fig.* 247.) Leaves long and narrow.— This variety is so distinct, that it is by many authors considered as a species. It is of remarkably rapid growth. There are two subvarieties of it, the gold-striped, and the silver-striped; both of remarkably free growth.

247. *R. A.* angustifòlia.



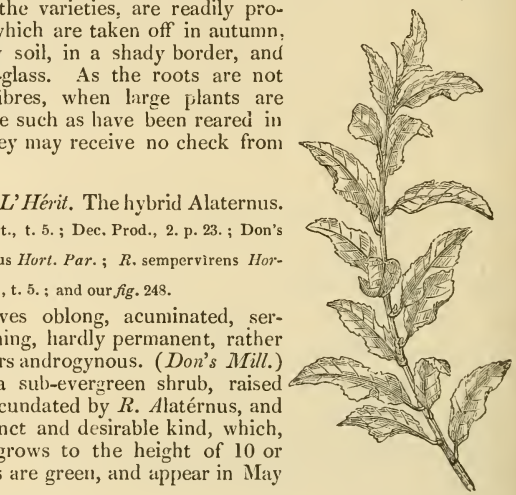
246. *R. A.* hispánica.

R. A. 5 *fòliis maculàtis.*—Leaves blotched with yellow.

R. A. 6 *fòliis aúreis.*—Leaves edged with yellow.

R. A. 7 *fòliis argénteis.*—This variety, which is very conspicuous from the large proportion of the leaves which is white, is more tender than some of the others. It generally does best against a wall, and is well worth a place there, on account of its splendid appearance, especially in winter.

In British gardens, this shrub is particularly valuable for the rapidity of its growth in almost any soil and situation, more especially the narrow-leaved variety. It is less injured by the smoke of coal than most other evergreens. The species, and all the varieties, are readily propagated by cuttings, which are taken off in autumn, and planted in sandy soil, in a shady border, and covered with a hand-glass. As the roots are not very productive of fibres, when large plants are chosen, they should be such as have been reared in pots, in order that they may receive no check from removal.



218. *Rhámnus hybridus.*

2. *R.* HY'BRIDUS *L'Hérit.* The hybrid Alaternus.

*Identification.* L'Hérit. Sert., t. 5.; Dec. Prod., 2. p. 23.; Don's Mill, 2. p. 33.
*Synonyme.* *R.* burgundìacus *Hort. Par.*; *R.* sempervìrens *Hortulan.*
*Engravings.* L'Hérit. Sert., t. 5.; and our *fig.* 248.

*Spec. Char., &c.* Leaves oblong, acuminated, serrated, smooth, shining, hardly permanent, rather coriaceous. Flowers androgynous. (*Don's Mill.*) A garden hybrid, a sub-evergreen shrub, raised from *R.* alpinus, fecundated by *R. Alatérnus*, and forming a very distinct and desirable kind, which, in British gardens, grows to the height of 10 or 12 feet. The flowers are green, and appear in May or June.

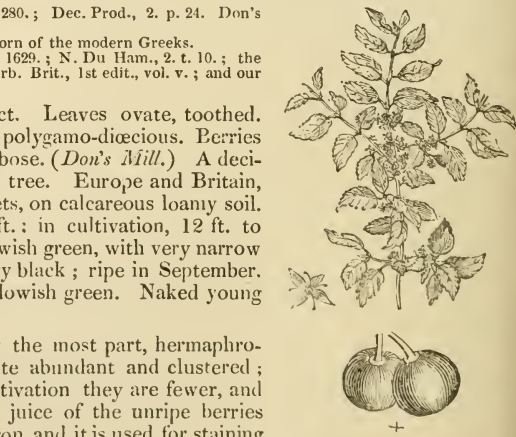
B. RHA'MNUS Dec. *Flowers 4-cleft, in Fascicles.*

a. *Branchlets terminating in a Thorn.*

3. *R.* CATHA'RTICUS *L.* The purging Buckthorn.

*Identification.* Lin. Spec., 280.; Dec. Prod., 2. p. 24. Don's Mill., 2. p. 30.
*Synonyme.* The White Thorn of the modern Greeks.
*Engravings.* Eng. Bot., t. 1629.; N. Du Ham., 2. t. 10.; the plate of this species in Arb. Brit., 1st edit., vol. v.; and our *fig.* 249.

*Spec. Char., &c.* Erect. Leaves ovate, toothed. Flowers in fascicles, polygamo-diœcious. Berries 4-seeded, rather globose. (*Don's Mill.*) A deciduous shrub or low tree. Europe and Britain, in woods and thickets, on calcareous loamy soil. Height 10 ft. to 12 ft.; in cultivation, 12 ft. to 15 ft. Flowers yellowish green, with very narrow petals; May. Berry black; ripe in September. Decaying leaves yellowish green. Naked young wood whitish.



249. *Rhámnus cathárticus.*

The flowers are, for the most part, hermaphrodite, and in a wild state abundant and clustered; but in a state of cultivation they are fewer, and nearly solitary. The juice of the unripe berries is of the colour of saffron, and it is used for staining maps or paper: they are sold under the name of French berries. The juice of the ripe berries, mixed with alum, forms the sap

green of painters; but, if the berries be gathered late in the autumn, the juice is purple. Plants of this species attain the height of 9 ft. in 10 years.

### 4. *R.* TINCTO'RIUS *Waldst.* The Dyer's Buckthorn.

*Identification.* Waldst. et Kit. Pl. Rar. Hung., 3. p. 255.; Dec. Prod., 2. p. 24.; Don's Mill., 2. p. 31.
*Synonyme.* *R.* cardiospérmus *Willd. Herb.*
*Engravings.* Hayne Abbild., t. 97. and our *fig.* 250.

*Spec. Char., &c.* Erect. Leaves ovate, crenate-serrated. Petioles villous. Flowers crowded, diœcious. Berries obcordate, 3—4-seeded. (*Don's Mill.*) A deciduous shrub. Hungary, in hedges. Height 8 ft. Introduced in 1820. Flowers greenish yellow; May and June. Berries yellow; ripe in September.

A plant of this species, in the garden of the London Horticultural Society, was, in 1834, 3 ft. high, after being 7 years planted.

250. *R*hámnus tinctòrius.

### 5. *R.* INFECTO'RIUS *L.* The staining Buckthorn, *or Avignon Berry.*

*Identification.* Lin. Mant., 49.; Dec. Prod., 2. p. 24.; Don's Mill., 2. p. 31.
*Synonymes.* *R*hámnus *L*ýcium *Scop. Carn.* ed. 2. n. 260.; dwarf, or yellow-berried, Buckthorn; Nerprun des Teinturiers, Graine d'Avignon, Nerprun teignant, *Fr.*; färbender Wegdorn, *Ger.*
*Engravings.* Ard. Mém., 78. t. 14.; N. Du Ham., vol. v. t. 73.; and our *fig.* 251.

*Spec. Char., &c.* Leaves ovate-lanceolate, serrulated, smoothish. Flowers diœcious, bearing petals in both sexes. (*Don's Mill.*) A deciduous, subprocumbent shrub. South of Europe, in rocky places; common about Avignon and the Vaucluse. Height 2 ft. Introduced in 1683. Flowers greenish yellow; June and July. Berry 3-celled, black; ripe in September.

The root fixes itself so firmly in the fissures of the rocks, that the plant can scarcely be pulled up. The stem divides immediately into branches, that are very much subdivided, and form a very close head, the shoots having numerous spines, both terminating and lateral. The berries are used for dyeing leather yellow; and the Turkey leather, or yellow morocco, is generally supposed to be coloured by them.

251. *R*hámnus infectòrius.

### 6. *R.* SAXA'TILIS *L.* The Stone Buckthorn.

*Identification.* Lin. Sp., 1671.; Dec. Prod., 2. p. 24.; Don's Mill., 2. p. 31.
*Synonymes.* *R.* longifòlius *Mill. Dict.*; Stein Wegdorn, *Ger.*; Lycio Italiano, *Ital.*
*Engravings.* Jacq. Austr., t. 43.; Hayne Abbild., t. 98.; Schmidt, 3. t. 157.; and our *fig.* 252.

*Spec. Char., &c.* Procumbent, or erectish. Leaves ovate-lanceolate, serrulated, smoothish. Flowers diœcious, female ones destitute of petals. (*Don's Mill.*) A procumbent deciduous shrub. South of Europe, among rocks, in Austria, Switzerland, Italy, and Greece. Height 1 ft. Introduced in 1752. Flowers greenish yellow; June and July. Berries black, containing three whitish seeds, each enclosed in a dry whitish membrane, which separates, when ripe, into two parts with elastic force; ripe in September.

252. *R*hámnus saxátilis.

### 7. *R.* BUXIFO'LIUS *Poir.* The Box-leaved Buckthorn.

*Identification.* Poir. Dict., 4. p. 463.; Dec. Prod., 2. p. 24.; Don's Mill., 2. p. 31.
*Synonymes.* ? *R.* *b*uxifòlius *Brot. Fl. Lus.* 1. p. 301.; *L*ýcium *b*uxifòlium *Bauh.*
*Engravings.* Du Ham., 3. t. 3. No. 12.; and our *fig.* 253.

*Spec. Char., &c.* Diffuse. Leaves ovate, quite entire, mucronate, smooth,

253. *R. buxifolius.*

coriaceous, green on both surfaces. (*Don's Mill.*) A subevergreen shrub. Spain, Italy, and the Levant, on hills. Height 2 ft. to 4 ft. Introd. in 1820. Flowers greenish yellow; June and July. Berry ? black; ripe ?.

A very neat shrub, of which there is a good specimen in the Chelsea Botanic Garden, which is quite hardy.

8. *R.* LYCIÖI'DES *Lin.* The Lycium-like Buckthorn.

*Identification.* Lin. Spec., 279.; Dec. Prod., 2. p. 25.; Don's Mill., 2. p. 31.
*Engravings.* Cav. Icon., 2. t. 182.; and our *fig.* 254.

*Spec. Char., &c.* Erect. Leaves linear, quite entire, obtuse, smooth. Flowers hermaphrodite. (*Don's Mill.*) A deciduous shrub. Spain, on the limestone hills of Valencia. Height 3 ft. to 4 ft. Introduced in 1752. Flowers greenish yellow; May and June. Fruit ?.

254. *R. lyciöides.*

9. *R.* ERYTHRO'XYLON *Pall.* The red-wooded Buckthorn.

*Identification.* Pall. Fl. Ross., 2.; Dec. Prod., 2. p. 25.; Don's Mill., 2. p. 31.
*Engravings.* Pall. Fl. Ross., 2. t. 62.; Itin., French edit., t. 90.; and our *fig.* 255.

*Spec. Char., &c.* Erect. Leaves linear, lanceolate, quite entire or serrated, smooth. Flowers hermaphrodite. Berries oblong. (*Don's Mill.*) A deciduous shrub. Mongolia and Siberia, near rivers. Height 6 ft. Introduced in 1823. Flowers greenish yellow; July and August. Berries black ripe in September.

*Variety.*

255. *R.* Erythróxylon.

R. *E.* 2 *angustíssimum* Dec. Prod. 2. p. 25., *R. lyciöides Pall. Fl. Ross.* t. 63., and our *fig.* 256., has the leaves narrow, smaller, and very finely serrulated. Native of Caucasus.

Delights in a warm situation; and in cold and humid places, Pallas observes, it is never met with. The wood, on account of its hardness and red colour, is used by the Mongols for making their images; and the berries, when macerated in water, afford them a deep yellow colour. The plant, in its wild state, is a prickly bush; but, when cultivated, the spines no longer appear.

256. *R.* E. angustíssimum

b. *Branchlets not terminated by Spines.*

10. *R.* DAHU'RICUS *Pall.* The Dahurian Buckthorn.

*Identification.* Pall. Fl. Ross., 2. t. 61.; Dec. Prod., 2. p. 25.; Don's Mill., 2. p. 31.
*Engravings.* Pal.. Fl. Ross., 2. t. 61.; and our *fig.* 257.

*Spec. Char., &c.* Erect. Leaves oblong-ovate, serrated, smooth, veiny. Flowers diœcious, female ones with bifid stigmas. (*Don's Mill.*) A deciduous shrub. Dahuria, near the river Arguinus. Height 5 ft. Introd. in 1817. Flowers greenish yellow; May and June. Berry black; ripe Sept.

The general appearance of the plant is that of *R.* cathárticus, but it is without thorns. The wood is red, and is called sandal wood by the Russians.

257. *Rhámnus dahùricus.*

♃ ♆ 11. *R.* ALNIFO`LIUS *L'Hérit.* The Alder leaved Buckthorn.

*Identification.* L'Hérit. Sert., t. 5.; Dec. Prod., 2. p. 25.: Don's Mill., 2. p. 32.
*Engravings.* Hayne Abbild., t. 61.; and our *fig.* 258.

*Spec. Char., &c.* Erect. Leaves obovate or ovate, serrulated, obliquely lineated with lateral nerves, acuminated or obtuse, smoothish beneath, except the nerves. Flowers hermaphrodite or diœcious. Pedicels 1-flowered, aggregate. Calyxes acute. Fruit turbinate. (*Don's Mill.*) A deciduous shrub. Hudson's Bay to Pennsylvania, in sphagnous swamps. Height 2 ft. to 4 ft. in America; 6 ft. to 8 ft. in England. Introd. in 1778. Flowers greenish yellow; June and July. Berry black, fleshy, 3-seeded; ripe in September.

258. *Rhámnus alnifòlius.*

259. *R. a* frangulöìdes.

*Variety.*

♃ ♆ R. *a.* 2 *frangulöìdes* Dec. *R.* frangulöìdes *Michx.* (N.Du Ham.3. t. 15.; our *fig.* 259.)—Leaves oval, serrated, pubescent on the nerves beneath. Canada to Virginia. Introd. 1810.

♆ 12. *R.* ALPI'NUS *Lin.* The Alpine Buckthorn.

*Identification.* Lin. Spec., 213.; Don's Mill., 2. p. 32.
*Engravings.* N. Du Ham., 3. t. 13.; Bot. Cab., t. 1077.; Schmidt, 3. t. 157.; the plate of the tree in Arb Brit., 1st edit., vol. v.; and our *figs.* 260. and 261.

260. *Rhámnus alpinus.*

261. *Rhámnus alpinus*

*Spec. Char., &c.* Erect, twisted. Leaves oval lanceolate, crenate-serrated, smooth, lineated with many parallel nerves. Flowers diœcious, female ones

with 4-cleft stigmas. (*Don's Mill.*) A deciduous shrub. Alps of Switzerland, Dauphiné, and Carniola. Height 5 ft. to 10 ft. Introd. 1752. Flowers greenish; May and June. Berries black; ripe in September.

*Variety.*

R. a. 2 *grandifolius* (*fig.* 262.) has much larger leaves than the species. It forms, when well grown, a very striking and handsome object, from the large size of its leaves and buds.

This is a very distinct species, and remarkable for its twisted leaves. There are strong plants of both the species and the variety in the arboretum of Messrs. Loddiges, and of the variety in the garden of the Hort. Soc., which, in 10 years, have attained the height of 8 ft., with numerous suberect branches, clothed with a purplish bark.

262. *Rhámnus alpinus grandifolius.*

263. *Rhámnus pumilus.*

13. *R.* PUMILUS *Lin.* The dwarf Buckthorn.

*Identification.* Lin. Mant., 49.; Don's Mill., 2. p. 32.
*Synonymes.* *R.* rupéstris *Scop. Carn.* 1. t. 5.; Ranno spaccasassi, *Ital.*
*Engravings.* Scop. Carn., 1. t. 5.; Schmidt Arb., 3. t. 155.; and our *fig.* 263.

*Spec. Char., &c.* Plant procumbent, much branched. Leaves ovate, serrated, smooth. Flowers hermaphrodite. (*Don's Mill.*) A deciduous procumbent shrub. Mount Baldo in the Alps, and Carniola, in the fissures of rocks. Height 2 ft. Introd. 1752. The flowers greenish yellow within and red without, the stamens white; June and July. Berries black; ripe in Sept.

The plant bearing this name in the London gardens we have never seen in such a thriving state as to enable us to decide whether or not it is truly distinct.

## § ii. *Frángula* Tourn.

*Identification.* Tourn. Inst., t. 383.; Dec. Prod., 2. p. 26.; Don's Mill., 11. p. 32.

*Sect. Char.* Flowers hermaphrodite, rarely diœcious, 5-cleft, sometimes 4-cleft. Seeds smooth, compressed, with the hilum white and exserted, and with the raphe lateral, on the surface of the inner testa. Embryo flat. Leaves membranous, caducous, quite entire, lined with approximate parallel nerves. (*Don's Mill.*)

14. *R.* CAROLINIÁNUS *Walt.* The Carolina Buckthorn.

*Identification.* Walt. Car., p. 101.; Dec. Prod., 2. p. 27.; Don's Mill., 2. p. 32.; Tor. and Gray, 1. p. 262.
*Engraving.* Our *fig.* 264.

264. *Rhámnus caroliniánus.*

*Spec. Char., &c.* Erect. Leaves oval-oblong, almost entire, smooth. Umbels stalked. Flowers hermaphrodite. Berries globose. (*Don's Mill.*) A deciduous shrub or tree. North Carolina to Florida, on the banks of rivers. Height 6 ft. to 8 ft., sometimes a tree 30 ft. to 40 ft. Introduced in 1819. Flowers greenish; May and June. Berries black; ripe in September.

In America this species, though usually a shrub in North Carolina, is in Georgia a considerable tree. Leaves 3 in. to 6 in. long, and 1 in. to 2 in. wide; sometimes acuminate, irregularly serrated; sometimes the margin is waved. Fruit as large as a small pea, mostly 3-seeded. (*Tor. and Gray.*)

♃ ☤ 15. *R.* FRA'NGULA *L.* The breaking Buckthorn, *or Berry-bearing Alder.*

*Identification.* Lin. Spec., 280.; Don's Mill., 2. p. 32.
*Synonymes.* Nerprun Bourgène, Aune noir, *Fr.*; glatter Wegdorn, *Ger.*; Alno nero, *Ital.*
*Derivation.* The name of Frangula, breaking, is applied to this species, from the brittleness of its branches.
*Engravings.* Eng. Bot., t. 250.; Œd. Fl. Dan., t. 278.; the plate of the species in Arb. Brit. 1st edit., vol. v.; and our *fig.* 265.

*Spec. Char., &c.* Leaves oval, quite entire, lineated with 10 or 12 lateral nerves, and, as well as the calyx, smooth. Flowers hermaphrodite. (*Don's Mill.*) A deciduous shrub, or low tree. Europe and part of Siberia, in woods and thickets; not uncommon in England, but rare in Scotland. Height 3 ft. to 6 ft., wild; 8 ft. to 10 ft. in British gardens. Flowers whitish, with purple anthers; May. Berries dark purple; ripe in September. Decaying leaves reddish green. Naked young wood dark brown.

*Variety.*

♃ ☤ R. *F.* 2 *angustifòlia* Hort. has narrower leaves. The plant of this species in the Horticultural Society's Garden is very distinct; and, in 1835, was 6 ft. high, after being 10 years planted.

Branches numerous, alternate, leafy, round, smooth, and blackish. From a quarter to half an ounce of the inner bark, boiled in small beer, is a sharp purge. The bark dyes yellow, and, with a preparation of iron, black. The flowers are particularly grateful to bees. The charcoal prepared from the wood is preferred by the makers of gunpowder to any other.

265. *R.* Frángula.

♃ ☤ 16. *R.* LATIFO'LIUS *L'Hérit.* The broad-leaved Buckthorn.

*Identification.* L'Hérit. Sert., 5. t. 8.; Dec. Prod., 2. p. 26.; Don's Mill., 2. p. 32.
*Engravings.* L'Hérit. Sert., 5. t. 8.; Dend. Brit., t. 11.; Willd. Abbild., t. 100.; the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 266.

*Spec. Char., &c.* Leaves elliptical, acuminate, quite entire, lineated with 12 or 15 lateral nerves; younger leaves and calyxes villous. Flowers hermaphrodite. (*Don's Mill.*) A deciduous shrub, with the habit of a low tree. Azores, on the mountains of St. Michael. Height 10 ft. to 15 ft. Introduced in 1778. Flowers greenish; July. Berries black or red, both colours appearing on the same plant at once; ripe in September.

The leaves are larger than those of any other species, except *R.* alpìnus grandifòlius; and the whole plant is remarkable for its robust appearance, and the conspicuous opposite nerves which proceed from the middle of the leaves. It deserves a place in every collection.

266. *Rhámnus latifòlius.*

*Other Species of* R*hámnus.* — There are various kinds described by authors, several of which are said to have been introduced, but they are either lost or synonymous with kinds already described. Among those which remain to be introduced are some which promise to be useful additions to this genus ; such as : —

R. p*ersicifòlius* Bert. (Moris. Stirp. Sard. fig. 2.) — An erect shrub, with lanceolate, minutely crenated leaves, pubescent on the under side, and on long petioles. Calyx free. Sardinia. Height 10 ft. to 12 ft. March and April.

R. a*mygdálinus* Desf. Atl. 1. p. 198. — A native of the North of Africa, in the fissures of rocks, where it grows to the height of 3 ft., and produces berries used for dyeing yellow, like those of *R.* saxátilis.

R. p*runifòlius* Smith Prod. Fl. Græc. 1. p. 157. — A native of Crete, on the highest mountains, and probably only a variety of one of the preceding sorts.

R. *Sibthorp*iànus *Schult. Syst.* 6. p. 286. ; *R.* pubéscens *Sibth. Fl. Græc.* t 239. — A native of Mount Parnassus, and nearly allied to *R.* alpìnus and *R.* Frángula.

R. *Pursh*iànus *Dec. Prod.* 2. p. 25. *R. a*lnifòlius of Pursh, but not of L'Héritier. (Hook. Flor. Bor. Am. 1. p. 123. t. 43., and our *fig.* 267.) — A shrub growing to the height of 6 ft., native of North America, on the banks of the Koorkoosky.

267. *R*hámnus Pursh*iànus*.

268. *R*hámnus oleifòlius.

R. o*leifòlius* Hook. Fl. Bor. Am. 1. p. 123. t. 44., Tor. & Gray, 1. p. 200., and *fig.* 268. from Hooker, is an evergreen shrub, with coriaceous leaves, unarmed shoots, and the flowers small, in axillary crowded panicles. It is a native of the north-west coast of California, where it forms a handsome shrub from 6 ft. to 12 ft. high.

R. *umbellàtus* Cav. Icon. 6. p. 2. t. 504. — A shrub, growing 6 ft. high in Mexico ; was raised in 1839 in the Hort. Soc. Garden, from seeds sent home by M. Hartweg ; but it is probably only half-hardy.

*R.* laurifòlius *Nutt.*, *R.* cròceus *Nutt.*, *R.* lanceolàtus *Pursh*, *R.* parvifòlius *Tor. & Gray*, *R.* ferrugíneus *Nutt.*, *R.* califórnicus *Esch* , and *R.* texénsis *Tor. & Gray*, are described in Tor. and Gray's *Flora of North America ; R.* pubéscens *Fl. Græc.*, and several others, are described in Don's *Miller*, and in the first edition of this work.

## Genus V.

COLLE'T*IA* Com. The Colletia. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Kunth Nov. Gen. Amer., 7. p. 58. ; Dec. Prod., 2. p. 28. Don's Mill., 2. p. 34.
*Synonyme.* *R*hámnus in part.
*Derivation.* Named by Commerson, in honour of *Collet*, his friend and countryman, who wrote upon the plants of Brest.

*Gen. Char. Calyx* campanulate, membraneous, coloured. *Petals* wanting, or very minute, linear. *Stamens* with ovate 2-celled, or reniform 1-celled, anthers. *Disk* short, cup-shaped, adnate to the bottom of the calyx. *Ovary* free, 3-celled. *Style* simple, elongated. *Stigma* 3-lobed. *Fruit* guarded at the

base by the permanent tube of the calyx, tric[illegible], dehiscent. (*Don's Mill.*)

*Leaves*, when present, simple, opposite, stipulate, [illegible]ciduous; very minute, and quite entire. *Flowers* axillary, fascicled, or racemose; and, when the leaves are absent, rising from beneath the base of the spines. — Much-branched shrubs, with divaricating, decussately opposite branches, and spiny branchlets.

1. C. HO'RRIDA *Lindl.* The bristly Colletia.

*Identification.* Lindl. in Bot. Reg.? Ad. Brong.
*Synonyme.* *C.* fèrox *Gill. et Hook.* in *Bot. Mis.* 1. 154. t. 44. β.
*Engravings.* Bot. Reg., t. 1776.; and our *fig.* 269.

*Spec. Char., &c.* Spines rigid, simple, or much branched. Peduncles mostly in pairs. Calyx ovate-oblong. Stamens sessile. (*Lindl.*) A spiny shrub, evergreen, from the colour of its branches and branchlets. Chili and Mendoza, on mountains. Height 3 ft. to 4 ft. Introduced in 1823. Flowers greenish white, stained with dull purple; May to July. Berry whitish, about the size of a small pea; ripe in Sept.

269. Collètia hórrida.

The young branches are furnished with "bright green sawed scales" as leaves, they are placed opposite, and at the base of each is a small stipule. The leaves and stipules speedily fall off, "leaving the branches to act as leaves, by the aid of their soft parenchyma, with which they are clothed in the form of bark." Hence, plants of any size appear one mass of naked spiny green branches in winter; and, in summer, having leaves and flowers all over the points of the branchlets. It is a most desirable addition to our evergreen shrubs; and, as it escaped the winter of 1837–8, it may be safely recommended as hardy, for climates not much colder than that of London. It grows in common garden soil, in a dry situation, fully exposed to the sun. It has not yet been propagated otherwise than by Chilian seeds, which are frequently received under the name of Retanilla. We have no doubt, however, that it might be increased by layers, or by cuttings in sand under a glass.

*Other Species of Collètia.* — There are plants in the London gardens, under the name of C. spinòsa and C. *u*lícina, which we consider merely as varieties of C. hórrida; though the former has white flowers, and the latter broader leaves than those which we have described. They are considered more tender than C. hórrida; but this may possibly be owing to the plants having been

270. Collètia *u*lícina. C. *E'*phedra. Collètia spinòsa.

younger. C. E'*phedra* Vent. Choix, t. 16. (the *R*hámnus *E*phedra *Domb.*, and the *Retanílla E'*phedra *Brong.*) is said to have survived the criterion winter at Liverpool. In *fig.* 270., *a* represents C. *u*lícina; *b*, C. *E'*phedra (*Retanílla E'*phedra *Brong.*); and *c*, C. spinòsa.

## Genus VI.

### CEANO'THUS *L.* The Ceanothus, *or* Red Root. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Brongn. Mém. Rham., p. 62.; Hook. Fl. Bor. Amer., 1. p. 124.; Dec. Prod., 2. p. 31.; Don's Mill., 2 p. 37.
*Synonymes.* Rhámnus species *L.*, *Juss.*, *Lam.*; Céanothe, *Fr.*; Säkebbaum, *Ger.*
*Derivation.* From *keanothus*, a name employed by Theophrastus to designate a spiny plant, derived from *keō*, to cleave: the modern genus has, however, nothing to do with the plant of Theophrastus. The English name, Red Root, is given to the plant in America, from the red colour of the roots, which are of a large size in proportion to the branches.

*Gen. Char.* *Calyx* with a subhemispherical tube, and 5 connivent segments. *Petals* 5, unguiculate, cucullate, deflexed. *Stamens* with ovate 2-celled anthers. *Disk* spongy, annular. *Ovary* spherical, girded by the disk, 3-celled. *Styles* 3, diverging, terminated by small papilliform stigmas. *Fruit* tricoccous, girded by the circumcised tube of the calyx. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, persistent or deciduous; ovate or elliptical, serrated or entire. *Flowers* terminal or axillary, in elongated racemes. — Shrubs, natives of North America, very ornamental in British gardens, and easily propagated by cuttings of the young wood, planted in sand, and covered with a hand-glass. Most of the species produce seeds freely in British gardens, and they all grow in any common garden soil.

#### 1. *C.* America'nus *L.* The American Ceanothus, *or Red Root; or New Jersey Tea.*

*Identification.* Lin. Spec., 281.; Dec. Prod., 2. p. 31.; Don's Mill., 2. p. 37.; Tor. and Gray 1. p. 264.
*Engravings.* Bot. Mag., t. 1497.; and our *fig.* 271.

*Spec. Char., &c.* Leaves ovate, acuminate, serrated, pubescent beneath. Thyrse elongated, axillary, with a pubescent rachis. (*Don's Mill.*) A deciduous suffrutescent low shrub. Canada to Florida, in woods and copses. Height 1 ft. to 3 ft.; in British gardens, 2 ft. to 4 ft. Introduced in 1713. Flowers white; June to August. Fruit black; ripe in September.

*Varieties.* Torrey and Gray describe three varieties, *C.* a. 2 Pítcheri, *C.* a. 3 herbàceus (*C.* perénnis *Pursh*, *C.* ovàtus *Desf.*), and *C.* a. 4 intermèdius (*C.* intermèdius *Pursh*, *fig.* 271.); but we scarcely think they are worth keeping apart in collections.

271. *C.* a. intermèdius.

Stems shrubby, or suffruticose. Leaves 2 in. to 3 in. long. The leaves and stems of the plant are pubescent; and the flowers, being produced in great numbers together, are very ornamental. They are succeeded by bluntly triangular capsules; and, about London, in fine seasons, the seeds ripen. Any soil that is tolerably dry. Seeds or cuttings. The leaves of this plant, dried, were used by the Americans as a substitute for Chinese tea, during the war of independence.

272. Ceanothus americánus.

#### 2. *C.* azu'reus *Desf.* The azure *flowered* Ceanothus, *or Red Root.*

*Identification.* Desf. Cat., 1815, p. 232.; Dec. Prod., 2. p. 31.; Don's Mill., 2. p. 37.
*Synonymes.* *C.* cærùleus *Lag. Gen. et Spec.* 1816, p. 11.; *C.* bicolor *Willd.* in *Schult. Syst.* 7. p. 65.
*Engravings.* Bot. Reg., t. 291.; Lodd. Bot. Cab., t. 110.; and our *fig.* 273.

*Spec. Char., &c.* Leaves ovate-oblong, obtuse, acutely serrated, smooth above, hoary and downy beneath. Thyrse elongated, axillary, with a downy rachis. Pedicels smooth. (*Don's Mill.*) A sub-evergreen shrub. Mexico. Height 6 ft. to 10 ft. Introduced in 1818. Flowers bright blue; May to September. Fruit black, enclosing 3 seeds; ripe in October.

*Variety.*

C. *a.* 2 *intermèdius*, *C.* intermèdius *Hort.*, has the habit of *C.* azùreus, with pale flowers, like those of *C.* americànus, varying with different shades of blue. It was raised by Mr. Masters of Canterbury, from seeds of *C.* azùreus fecundated by *C.* americànus.

273. *C.* azùreus.

A very handsome shrub, profusely covered with brilliant celestial blue flowers in large panicles. In Mexico its bark is considered as a febrifuge. It is the most robust-growing species of the genus, attaining, in 3 or 4 years from seed, the height of 5 or 6 feet, or more, against a wall. It was at first treated as a green-house plant, but lately it has been found to be nearly as hardy as the North American species. In the winter of 1837-8 these plants were greatly injured, but none of them killed. North of London the plant is less vigorous.

3. *C.* (A.) THYRSIFLO'RUS *Esch.* The Thyrse-flowered Ceanothus.

*Identification.* Esch. in Mem. Acad. St. Petersburg (1826); Hook. Fl. Bor. Am., 1. p. 125.; Don's Mill., 2. p. 37.; Tor. and Gray, 1. p. 266.
*Synonyme.* *C.* ovàtus cyàneus *Booth. Baumann, &c.*
*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* Leaves oval, 3-nerved, serrulated, smooth. Stem many-angled; panicle thyrsoid in the axillary branches. (*Don's Mill.*) A sub-evergreen shrub, or small tree. Monterey, Upper California, and north-west coast of North America. Height in America 5 ft. to 20 ft. Introduced in ?1830. Flowers bright blue; May to November. Fruit black; ripe about a month after flowering.

In its native country, in favourable situations, this species becomes a small tree, with a stem sometimes as thick as a man's arm, and strongly angular branches. In British gardens it forms a free-flowering highly ornamental shrub, with much of the habit of *C.* azùreus; from which it chiefly differs in having the flowers in a close, instead of in an elongated, thyrse. Notwithstanding this difference, we consider it as only a variety of that species.

4. *C.* VELUTI'NUS *Doug.* The velvety-*leaved* Ceanothus.

*Identification.* Hook. Flor. Bor. Amer., 1. p. 125.; and Tor. and Gray, 1. p. 265.
*Engravings.* Hook. Flor. Bor. Amer., 1. t. 45.; and our *fig.* 274.

*Spec. Char., &c.* Branches somewhat pendulous. Leaves orbicular, elliptical or elliptical ovate, obtuse, subcordate, glandularly crenate, serrulate, coriaceous, glabrous, and shining (as if varnished) above, velvety, canescent, and strongly 3-ribbed beneath. Panicles axillary, elongated, on rather long peduncles. (*Tor. and Gray.*) A shrub, probably sub-evergreen. North-west coast of North America, on subalpine hills. Height 3 ft. to 8 ft. Not introduced. Flowers white. Fruit dry, 2—3-seeded.

274. *C.* velutinus.

This is apparently a very desirable species; and, as it is so abundant as to cover the whole declivities of hills, forming thickets very difficult to penetrate, we have no doubt that it will soon be introduced. Branches nearly glabrous. The leaves abound with an aromatic resin.

5. *C.* COLLI'NUS *Doug.* The Hill-side Ceanothus.

*Identification.* Doug. in MSS.; Fl. Cab., t. 13.
*Engravings.* Fl. Cab., t. 13.; and our *fig.* 275.

*Spec. Char., &c.* Branches decumbent, round, and smoothish. Leaves ovate or elliptic, somewhat clammy, glandular, serrated, upper surface shining, under surface covered with adpressed hairs, 3-nerved. Stipules awl-shaped. Panicles axillary. (*Knowles and Westcott.*) A hardy, evergreen, low, decumbent shrub. North America. Height 1 ft. Introduced in 1827. Flowers white, produced in great abundance; June and July. Fruit brown; ripe in September.

Layers, which root readily, or seeds.

*Other Species of Ceanòthus.* — *C.* ovàtus and *C.* intermèdius, we have seen, on the authority of Torrey and Gray, are only varieties of *C.* americànus; and we have no doubt that this will be the case with *C.* ovàlis, *C.* sanguíneus, *C.* oregànus, and other species described by authors. In short, there appears to us no assignable limits to the sports and hybrids that may be produced in this genus.

275. Ceanòthus collìnus.

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## ORDER XXIII. HOMALINA'CEÆ.

*ORD. CHAR.* *Calyx* funnel-shaped, its tube usually adnate to the ovary, its limb with 5—15 lobes. *Petals* inserted into the calyx, as many as its lobes, alternate with them, smaller than they, and deemed by some an inner whorl of lobes of the calyx. *Glands* present in front of the segments of the calyx. *Stamens* arising from the base of the petals, either singly, or in threes or sixes. *Anthers* 2-celled, opening longitudinally. *Ovary* 1-celled, with numerous ovules. *Styles* 3—5, simple. *Fruit* berried or capsular. *Seeds* small. (*Lindl.*) — Trees or shrubs; natives of South America.

*Leaves* simple, alternate, with deciduous stipules, sub-evergreen; toothed or entire. *Flowers* axillary, in spikes, racemes, or panicles. — The species in British gardens belong to the genera Aristotèl*ia* and Azàr*a* (the latter rather tender), which are thus contradistinguished: —

ARISTOTE'L*IA* L'Hérit. Corolla of 5 petals. Stamens 15—18, polyadelphous. Fruit a globose, free, 3-celled berry. Cells 1—2-seeded.

AZA'R*A* R. et P. Corolla none. Stamens numerous. Fruit a globose 1-celled, 5-seeded berry.

### GENUS I.

ARISTOTE'L*IA* L'Hérit. THE ARISTOTELIA. *Lin. Syst.* Polyadélphia Polyándria.

*Identification.* L'Hérit. Stirp., p. 31.; Dec. Prod., 2. p. 56.; Don's Mill., 2. p. 58.
*Derivation.* Named in commemoration of *Aristotle*, the celebrated philosopher and naturalist.

*Gen. Char.* *Calyx* campanulate, profoundly 5-cleft. *Petals* 5, inserted in the

base of the calyx, and alternating with its lobes. *Stamens* 15—18, generally 3 or 4 in each bundle, placed in front of the lobes of the calyx. *Anthers* opening by two pores at the apex. *Ovary* free. *Styles* 3, somewhat connected at the base. *Berry* globose, 3-celled. *Seeds* angular. (*Don's Mill.*)

*Leaves* simple, opposite, stipulate, sub-evergreen; stalked and shining. *Flowers* in axillary racemes.

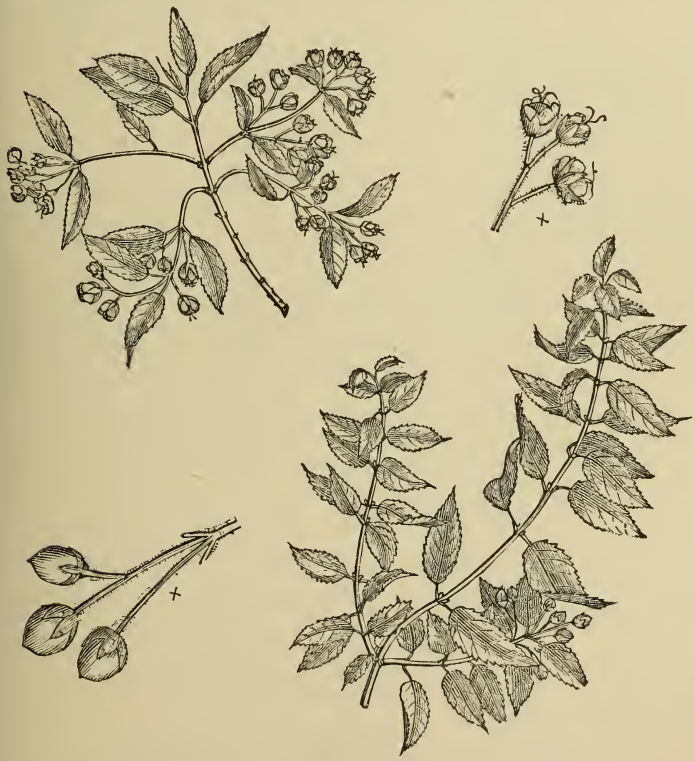
♣ ♠ ♆ ♇ 1. A. *MA'CQUI* L'Hérit. The Macqui Aristotelia.

*Identification.* L'Hérit. Stirp., p. 31.; Dec. Prod., 2. p. 56.; Don's Mill., 2. p. 58.
*Synonymes.* A. glandulòsa *R. et P. Fl. Per. Syst.* p. 126.; A. *Màqui* in Dec. Prod., 2. p. 56.
*Engravings.* L'Hérit. Stirp., t. 16.; Wats. Dend. Brit., t. 44.; N. Du Ham., t. 33.; the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 276.

*Spec. Char., &c.* Calyx deeply 5-cleft. Styles 3, somewhat connected at the base. A sub-evergreen shrub, or low tree. Chili. Height in British gardens 7—18 ft. Introduced in 1733. Flowers small, green, purplish, and yellow; May and June. Berry very dark purple; ripe in September.

*Variety.*

♣ ♠ *A.* M. 2 *fòliis variegàtis.*—The variegated-leaved Macqui Aristotelia.



276. Aristotèlia *Mácqui.*

In Chili this plant forms an evergreen shrub, with diffuse branches, growing to the height of 6 ft. The flowers are not very showy; but they are succeeded by berries about the size of a pea, very dark purple, and at length becoming black, which are acid and eatable. In British gardens, it forms a sub-ever-

green shrub or low tree, of very vigorous growth; so much so, in a young state, that, from the shoots not being matured, they are frequently killed down to the ground, and the foliage more or less injured. Notwithstanding this, the aristotelia frequently flowers, and even ripens fruit; and, in all probability, if the tree were planted in dry and rather poor soil, so as to grow slowly, and not make more wood every year than it could ripen properly, it would attain a large size, and form a very handsome hardy evergreen shrub or tree. The plant grows vigorously in any common garden soil, producing shoots 3 ft., 4 ft., or 5 ft. in length when young; and it is readily propagated by cuttings or by layers.

2.7. Azàra dentàta.

*Other Species of Aristotèlia.* — One has been raised in the Chelsea Botanic Garden, from South American seeds, which Mr. Dillwyn found to stand the winter of 1837–8 better than A. *Mácqui.*

* *Azàra dentàta* R. & P., Don's Mill. i. p. 257. (Bot. Reg. t. 1788., and our *fig.* 277.) is an evergreen shrub or low tree, growing to the height of 12 ft. in Chili. It stood 8 years in the Hort. Soc. Garden, against a wall, and, though killed by the winter of 1837–8, it may yet ultimately prove tolerably hardy. *A. integrifòlia*, if a different species, may possibly be found hardy also.

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## Order XXIV. ANACARDIA'CEÆ.

*Identification.* Lindley, in Introd. to N. S.
*Synonymes.* Terebinthàceæ, tribe 1. Anacardièæ *R. Br.*, and tribe 2. *Sumachíneæ* Dec. Prod. 2. 66.

*Ord. Char.* *Flowers* generally unisexual. *Calyx* usually 5-parted. *Petals* equal in number to the divisions of the calyx, cohering at the base when the disk is absent. *Stamens* same number, or twice that number. *Disk*, when present, annual. *Ovarium* usually solitary. *Styles* 1—3, sometimes wanting. *Fruit* indehiscent. (*Lindl.*) — Low deciduous or evergreen trees, natives of Asia and Africa.

*Leaves* simple or compound, alternate, exstipulate, deciduous or evergreen; without pellucid dots. *Flowers* terminal or axillary, in panicles, with bracts. — The hardy species belong to the genera *P*istàcia, *R*hús, and Duvaú*a*, which are thus contradistinguished: —

*P*ista'cia *L.* Flowers diœcious, apetalous, amentaceous. Stigmas 3. Drupe dry, containing a 1-celled, 1-seeded nut.

*R*hu's *L.* Flowers polygamous. Styles or stigmas 3. Drupe nearly dry, containing a 1-celled, 1—3-seeded nut.

Duvau'*a* Kth. Flowers monœcious or diœcious. Styles 3—4, short. Drupe containing a coriaceous 1-seeded nut.

### Genus I.

*P*ISTA'CIA *L.* The Pistachia Tree. *Lin. Syst.* Diœ'cia Pentándria

*Identification.* Lin. Gen., 1108.; Dec. Prod., 2. p. 64.; Don's Mill., 2. p. 61. and 65.
*Synonyme.* Terebínthus *Juss.*
*Derivation.* From the Greek word *Pistakia*, derived from *Psittakion*, the name of a city; or from the Arabic word *Foustaq*, the Arabian name of *P*istàcia vèra.

*Gen. Char.* *Flowers* diœcious, and without petals; disposed in amentaceous

racemes, each scale with one flower. *Calyx* 3—5-cleft. *Stamens* 5, inserted into a calycine disk, or into the calyx; with 4-cornered, almost sessile, anthers. *Ovary* 1—3-celled. *Stigmas* 3, and thickish. *Fruit* a dry ovate drupe; nut bony, and usually 1-celled, with a single seed affixed to the bottom. *Cotyledons* thick, fleshy, oily, and bent back upon the radicle.—Small trees, natives of the South of Europe and Asia.

*Leaves* compound, impari-pinnate, deciduous or evergreen; dying off of a beautiful reddish purple; young shoots tinged with purple.

♀ 1. *P.* VE'RA *L.* The true Pistachia Tree.

*Identification.* Lin. Spec., 1454.; Dec. Prod., 2. p. 64.; Don's Mill., 2. p. 65.
*Synonymes.* Pistacia officinàrum *Hort. Kew.*; Pistachier, *Fr.*; Pistazienbaum, *Ger.*; Pistacchio, *Ital.*; Alfocigo, *Span.*
*Engravings.* Blackw. Icon., t. 461.; N. Du Ham., 4. t. 17.; and our *fig.* 278.

*Spec. Char., &c.* Leaves deciduous, impari-pinnate, of 3—5 leaflets, rarely of 1; the leaflets ovate, a little tapered at the base, indistinctly mucronate at the tip. (*Dec. Prod.*) A deciduous tree. Syria. Height 20 ft. Introduced in 1770. Flowers small, brownish green; April and May. Fruit reddish, an inch long, ovate; ripe in Syria in September, rarely seen in England.

*Varieties.* The following are considered by some authors as species:—

♀ P. *v.* 2 *trifolia* Lin. Spec. 1454., Bocc. Mus. ii. t. 93., has leaves usually of 3 leaflets.

♀ P. *v.* 3 *narbonénsis* Bocc. Mus. t. ii. 693., *P.* reticulàta *Willd.*, has pinnate leaves, the leaflets having prominent veins. H. S.

278. *Pistàcia vèra.*

Cultivated in the South of France, and in Italy, for its fruit; the nut of which is sometimes eaten raw, but more frequently in a dried state, like almonds. In British gardens, the tree is not much planted, from its being generally supposed to require a wall; but, in favourable situations, it will grow as a standard or a bush in any common garden soil, and may be propagated either by nuts procured from abroad, or by cuttings.

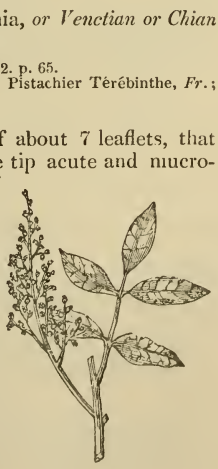
♀ 2. *P.* TEREBI'NTHUS *Lin.* The Turpentine Pistachia, *or Venetian or Chian Turpentine Tree.*

*Identification.* Lin. Spec., 1455.; Dec. Prod., 2. p. 64.; Don's Mill., 2. p. 65.
*Synonymes.* *T.* vulgàris *Tourn. Inst.* 579.; *P.* vèra *Mill. Dict.* No. 4.; Pistachier Térébinthe, *Fr.*; Terpentin Pistacie, *Ger.*; Terebinto, *Ital.*
*Engravings.* Woody Med. Bot., 415. t. 153.; and our *fig.* 279.

*Spec. Char., &c.* Leaves deciduous, impari-pinnate, of about 7 leaflets, that are ovate-lanceolate, rounded at the base, and at the tip acute and mucronate. (*Dec. Prod.*) A deciduous tree. South of Europe and North of Africa. Height 30 ft. Introduced in 1656. Flowers dull yellow and crimson; June and July. Fruit dark blue, hardly bigger than a large pea.

*Variety.*

♀ P. T. 2 *sphærocárpa* Dec.—Fruit larger and rounder than that of the species.


279. *P. Terebínthus.*

The general appearance of the tree is that of *P.* vèra, but the leaves are larger, and the fruit only a third of the size; the leaflets are, also, lanceolate, instead of being subovate. The red hue of the branches, especially when young, is very beautiful; and the leaves are

also more or less tinged with red. The fruit is round, not succulent, and somewhat furrowed; at first green, and afterwards reddish; but black, or of a very dark blue, when ripe. The leaves and flowers emit a very resinous odour, which spreads to a considerable distance, more especially at sunset, when the dew is falling, after a very warm day. The substance called Venice or Chian turpentine is the resin which exudes from this tree. In British gardens, the tree is not very common, though it is generally considered as the hardiest of the genus; and, with *P.* vèra, may be planted in warm sheltered situations in the open border.

### ♀ 3. *P.* Lentí'scus *L.* The Mastich Tree.

*Identification.* Lin. Spec., 1455.; Dec. Prod., 2. p. 65.; Don's Mill., 2. p. 66.
*Synonyme.* Corno capra, *Ital.*
*Engravings.* Woodv. Med. Bot., t. 152.; and our *fig* 280.

*Spec. Char., &c.* Evergreen. Leaves abruptly pinnate; leaflets 8, lanceolate; petiole winged. (*Dec. Prod.*) An evergreen tree. Southern Europe, Northern Africa, and the Levant. Height 20 ft. Introduced in 1664. Flowers green; April and May. Fruit brownish; ripe in October.

*Varieties.*

♀ P. L. 2 *angustifòlia* Dec., *P.* massiliénsis *Mill. Dict.*, *P.* angustifòlia massiliénsis *Tourn.*, has leaflets almost linear, and the tree seldom exceeds 10 ft. in height.

♀ P. L. 3 *chìa* N. Du Ham. iv. p. 72.; *P.* chìa *Desf. Cat. Hort. Par.* — A native of Scio, where it produces the mastich.

280. Pistàcia Lentíscus.

The species bears a general resemblance to the two preceding ones, in summer, when they are clothed with foliage; but it differs from them in being evergreen, and in having the leaves much smaller. The leaves have sometimes 5 leaflets on each side; and the petioles are so much winged as to appear like pinnæ. The tree in the South of Europe, and the North of Africa, is cultivated in gardens, as well as found in a wild state; but in British gardens it is not so hardy as *P.* Terebínthus, and north of London should always be planted against a wall.

*Other Species of* Pistàcia. — P. *atlántica* Desf., a deciduous tree from Mount Atlas, is said to have been introduced in 1790, but it requires the protection of a frame or green-house.

## Genus II.

### *RHU'S L.* The Rhus, *or* Sumach. *Lin. Syst.* Pentándria Trigýnia and Diœ'cia Pentándria.

*Identification.* Lin. Gen., 369.; Lam. Ill., t. 207.; Kunth Gen. Tereb., p. 5.; Dec. Prod., 2. p. 66.; Don's Mill., 2. p. 61. and p. 69.
*Synonymes.* Sumach, *Fr.* and *Ger.*; Ru, *Ital.*
*Derivation.* From *rhoos*, or *rhous*, Greek, or from *rhudd*, or *rud*, Celtic, red; in allusion to the colour of the fruit and leaves of some of the species in autumn. Others derive *Rhús* from the Greek verb *rheō*, I run, from the habit of the roots running and spreading under ground to a considerable distance from the tree. Sumach is derived from *Simaq*, the Arabic name of the plant.

*Gen. Char.* *Sexes* hermaphrodite, diœcious, or polygamous. *Calyx* small, 5-parted, persistent. *Petals* ovate, and inserted into a calycine disk, or into the calyx. *Stamens* 5, inserted into a calycine disk. *Ovary* single,

subglobular, of 1 cell. *Styles* 3, short, or wanting. *Stigmas* 3. *Fruit* an almost dry drupe of 1 cell, with a bony nut, which includes a single seed; and, in some instances, 2—3 seeds. (*Dec. Prod.*)—Deciduous shrubs. Natives of Europe, Asia, and North and South America.

*Leaves* simple or unequally pinnate, alternate, stipulate, deciduous. *Flowers* in terminal racemes, or panicles.—The leaves vary much, both in form and magnitude; and they generally die off, in autumn, of a dark red, or a bright scarlet, or yellow, when they are very ornamental. Most of the species are poisonous, some highly so; and they all may be used in tanning, and dyeing yellow or black. They are all easily propagated by cuttings of the root, and some of them by cuttings of the branches.

Some of the hardy species are rambling climbers, and others tree-like bushes.

## § i. *Cótinus* Tourn.

*Sect. Char.* Leaves undivided. Flowers hermaphrodite.

### ♃ 1. *R. Co'*TINUS *L.* The Cotinus Rhus, *or Venetian Sumach.*

*Identification.* Lin. Spec., 383.; Dec. Prod, 2. p. 67.; Don's Mill., 2. p. 69.
*Synonymes.* Cótinus *Coggýgria Scop. Carn.* ed. 2. No. 368., *Mœnch Meth.* 73.; Cótinus coriàcea *Duh. Arb.* 1. t. 78.; Venus Sumach, Venice Sumach, wild Olive; Sumach Fustet, or Arbre aux Péruques, *Fr.*; Perücken Sumach, *Ger.*; Scotano, *Ital.*
*Derivation.* The term Cótinus is derived from *cotinos*, a name under which Pliny speaks of a tree with red wood, which is supposed to grow in the Apennines.
*Engravings.* Jacq. Aust., t. 210.; and our *fig.* 281.

*Spec. Char., &c.* Leaves obovate. (*Dec. Prod.*) A deciduous rambling shrub. Spain to Caucasus; and, according to Torrey and Gray, probably of North America. Height 4 ft. to 6 ft. wild; 6 ft. to 8 ft. in a state of culture. Introduced in 1656. Flowers pale purplish, or flesh colour; June and July. Fruit white; ripe in September. Decaying leaves of a fine reddish yellow. Naked young wood smooth brown.

281. *R.* Cótinus.

The flowers are disposed in loose panicles, and are hermaphrodite. The drupe is half-heart-shaped, smooth, and veiny; and its nut is triangular. Many of the flowers are abortive; and their pedicels, after flowering, lengthen, and become hairy. A highly ornamental shrub, more especially when covered with its large loose panicles of elongated hairy pedicels. It is easily known from all the other species by its simple, obovate, smooth, stiff, lucid green leaves, rounded at the points, and supported by long footstalks, which remain on till they are killed by frost, so that the plant is almost a sub-evergreen. A dry loam suits it best; and it is propagated by pegging down the branches flat to the ground, and strewing earth over them, through which young shoots rise up, which root at the base, and may be removed in autumn.

## § ii. Sùmach *Dec.*

*Sect. Char.* Leaves impari-pinnate; leaflets more than 3 in the leaves of each of the first 6 species of this section. Flowers in panicles, polygamous, diœcious, or hermaphrodite.

### ♃ ♀ 2. *R.* TYPHI`NA *L.* The Fever Rhus, *or Stag's Horn Sumach.*

*Identification.* Lin. Spec., 380.; Dec. Prod., 2. p. 67.; Don's Mill., 2. p. 70.; Tor. and Gray, 1. p. 217.
*Synonymes.* *R.* virginiàna *Bauh. Pin.* p. 517.; Virginian Sumach.
*Engravings.* N. Du H., 2. t. 47.; Wats. Dend. Brit., t. 17. and t. 18.; and our *fig.* 282., the male.

*Spec. Char., &c.* Leaf of 8—10 pairs of leaflets, and the odd one, that are lanceolate, acuminate, serrated, hairy beneath. Petiole and branches hairy.

(*Dec. Prod.*) A shrub, with the habit of a low deciduous tree. Canada to Carolina, in rocky dry situations. Height 20 ft. Introduced in 1629. Flowers, female dark purple, male greenish yellow and purple; July and August. Fruit hairy, purple; ripe in October. Decaying leaves dark purple or red, sometimes mixed with yellow. Naked young wood dark brown, hairy. DeCandolle has characterised two forms of this species as follows: —

♀ R. *t.* 1 *arboréscens.* —A tree between 10 ft. and 25 ft. high; leaf slightly downy beneath.

♂ R. *t.* 2 *frutéscens.* — Shrubby, between 2 ft. and 10 ft. high; and its leaf downy and whitish beneath.

♀ R. *t.* 3 *viridiflòra.* *R.* viridiflòra *Poir.* — Flowers green. Possibly nothing more than the male plant.

*R*hús typhìna, in British gardens, is either a large shrub, or a low tree with a woody stem and a head composed of many irregular branches, generally crooked and deformed. The young shoots are covered with a soft velvet-like down, resembling that of a young stag's horn, both in colour and texture; whence, and probably also from the crookedness of the branches, the common name. The cellular tissue of the wood is of an orange colour, with a strong aromatic odour, and a copious resinous juice. The leaves are 2 ft. to 3 ft. long, and they are very conspicuous in autumn, before they drop off, when they change to a purplish or yellowish red. The flowers are produced in close spikes at the ends of the branches; they are often polygamous or diœcious by abortion, and the female ones are followed by seeds enclosed in woolly, simple, succulent covers. As the plant is of open irregular growth, and not of long duration, it should never be placed where it is intended to act as a screen. Like all objects the chief beauty of which consists in their singularity, it produces the most striking effect when standing alone on a lawn.

282. *R*hús typhìna.

♂ ♀ 3. *R.* (? T.) GLA'BRA *Lin.* The glabrous Rhus, *or Scarlet Sumach.*

*Identification.* Lin. Spec., 380.; Dec. Prod., 2. p. 67.; Don's Mill., 2. p. 70.; Tor. and Gray, 1. p. 217.
*Engravings.* Wats. Dend. Brit., t. 15.; and our *fig.* 283., the female.

*Spec. Char., &c.* Leaf glabrous, of 8—10 pairs of leaflets, and an odd one; leaflets lanceolate-oblong, serrate, whitish beneath. Branches glabrous. (*Dec. Prod.*) A deciduous shrub or low tree. Canada to Georgia. Height 5 ft. to 18 ft. Introduced in 1726. Flowers, male greenish yellow, female greenish red. Fruit red; ripe in October. DeCandolle has distinguished three forms of this species; namely: —

♂ R. *g.* 1 *hermaphrodìta.* *R.* glàbra *Willd. Spec.* i. p. 1478., *Dill. Elth.* t. 243. — Flowers hermaphrodite, greenish.

♂ R. *g.* 2 *dioíca* Lam. Ill. t. 207. f. 1. — Flowers diœcious, greenish.

♂ R. *g* ? 3 *coccínea.* *R.* caroliniànum *Mill. Dict.*; *R.* élegans *Ait.*, *Lodd. Cat.*, *Dend. Brit.* t. 16. — Flowers diœcious, red. This variety is dis-

283. *R*hús glabra.

tinguished by a more upright habit of growth, and smoother branches and leaves, than *R.* glàbra. The leaves are glaucous underneath; and the fruit is of a rich velvety crimson.

The general appearance of the species is similar to that of *R.* typhìna; but the leaves and the entire plant are smaller, the branches more spreading and smooth, and the leaflets wider, less serrated, and of a deeper green.

4. *R.* VENENA'TA *Dec.* The poisonous Rhus, *Poison Wood, or Swamp Sumach.*

*Identification.* Dec. Prod., 2. p. 68.; Don's Mill., 2. p. 71.; Tor. and Gray, 1. p. 218.
*Synonymes.* *R.* vérnix *Lin. Spec.* 380., *Big. Med. Bot.* 1. p. 96. t. 10.; Toxicodéndron pinnàtum *Mill. Dict.* No. 5.; Poison Sumach, Poison Elder.
*Engravings.* Wats. Dend. Brit., t. 19.; and our *fig.* 284

*Spec. Char., &c.* Leaf rather glabrous than pubescent, of 5—6 pairs of leaflets, and the odd one, which are ovate-lanceolate, acuminate, entire, and beneath reticulately veined. (*Dec. Prod.*) A deciduous shrub. Canada to Georgia, and west to Louisiana, in swamps. Height 15 ft. to 20 ft. Introd. 1713. Flowers green; July. Berry smooth, greenish white; ripe in ? October. Decaying leaves intense red, or purple. Naked young wood purplish green.

284. *Rhus venenata.*

The leaves are divided like those of *R.* typhìna and *R.* glàbra; but they are quite different from those of both kinds, in being smooth, shining, and having the leaflets very entire, narrow, and pointed, and the veins of a purplish red colour. The whole shrub is in a high degree poisonous; and the poison is communicated by touching or smelling any part of it. In British gardens it is not very common; but it well deserves culture, on account of the beauty of its smooth shining foliage at all seasons, and of its almost unparalleled splendour in the autumn, from the time that the leaves begin to change colour, till they ultimately drop off, of an intense purple or scarlet, with the first frost.

5. *R.* CORIA'RIA *Lin.* The hide-tanning Rhus, *or the Elm-leaved Sumach.*

*Identification.* Lin. Spec., 379.; Dec. Prod., 2. p. 67.; Don's Mill., 2. p. 70.
*Derivation.* Coriària alludes to the use made of this plant by the Romans, and also by the Turks, in tanning leather.
*Engravings.* N. Du Ham., 2. t. 46.; Wats. Dend. Brit., t. 136.; and our *figs.* 285. and 286.

285. *Rhus Coriaria.*

*Spec. Char., &c.* Leaf villose, of 5—7 pairs of leaflets, and the odd one; leaflets elliptical, and toothed with large and blunt teeth. The petiole smooth at the tip, a little margined. (*Dec. Prod.*) A deciduous shrub or low tree. Portugal to Tauria, on rocks in exposed situations. Height 15 ft. to 20 ft. Introduced in 1629 Flowers whitish green, in large loose panicles; July and August. Fruit red; ripe in October, rare in England. Decaying leaves purplish red.

286. *R. Coriaria.*

The general habit of this plant resembles that of *R.* typhìna; but it is

much smaller in all its parts. The leaflets are about 2 in. long, and ½ in. wide, of a pale green, serrated, and in general appearance resembling the leaves of the common elm. Culture as in *R.* typhìna.

✠ 6. *R.* COPALLI'NA *Lin.* The Gum Copal Rhus, *or Mastich-tree-leaved Sumach.*

*Identification.* Lin. Spec., 380.; Dec. Prod., 5. p. 68.; Don's Mill., 2. p. 72.; Tor. and Gray, 1. p. 217.
*Engravings.* Jacq. Hort. Schön., t. 341.; Pluk. Alm., p. 56. f. 1.; and our *fig.* 287.

*Spec. Char., &c.* Leaf glabrous above, a little pilose beneath, of 5—7 pairs of leaflets, and the odd one; leaflets lanceolate and entire. Petiole winged and jointed. Root stoloniferous. Flowers yellow green. Sexes diœcious. (*Dec. Prod.*) A deciduous shrub. Canada to Florida. Height 3 ft. to 8 ft. Introduced in 1688. Flowers yellowish green; July and August Berries red; ripe in September. Decaying leaves purplish red.

*Varieties.* Three forms are given by Torrey and Gray: — α, Leaflets entire, usually acuminate, which may be considered as the species: β, leaflets coarsely and unequally serrate: and γ, leaflets (about 21) small, oblong, acute at the base; obtuse and slightly mucronate at the apex; petiole narrowly winged. Jacquin has

✠ *R. c.* 2 *leucántha* Jac. Hort. Schön., t. 342. — Root not stoloniferous. Panicles more contracted than in the species.

287. *R*hûs copallìna.

The leaves and general habit of the plant are those of *R.* typhìna, but it seldom grows to the height of more than 4 or 5 feet in British gardens. The branches are smooth, and the leaflets entire with acute points; they are light green on both sides, and in autumn change to a fine purple. The petiole, as in *R. Co*riària, is somewhat winged towards its tip, which, with other circumstances, induces us to think that they may both be varieties of the same species. The leaves are used as tobacco by the Indians of the Missouri and the Mississippi.

✠ ♃ 7. *R.* TOXICODE'NDRON *L.* The Poison-Tree Rhus, *or Sumach.*

*Identification.* Tor. and Gray, 1. p. 218.
*Synonymes.* *R.* Toxicodéndron, and *R.* radicans *L.*, *Dec.*, *Don's Mill.*, *&c.*
*Engraving.* Our *fig.* 000. in p. 000.

*Spec. Char., &c.* Stem erect, decumbent, or climbing by radicles. Leaves 3-foliolate, somewhat pubescent; leaflets (membranaceous) broadly oval or rhomboid, acuminate, entire or toothed, the lateral ones inequilateral. Panicles racemed, axillary, subsessile. Drupe subglobose, smooth. (*Torrey and Gray.*) A low rambling or climbing shrub. Canada to Georgia, in shady damp places. Stems 10 ft. to 20 ft. as a climber; or 3 ft. to 5 ft. high as a bush. Introduced in 1640. Flowers greenish, mostly diœcious; June and July. Berry pale chestnut; ripe in September. Decaying leaves purplish red.

*Varieties.* The following forms are given by Torrey and Gray: —

✠ R. T. 1 *quercifòlium* Tor. & Gray. *R.* T. β *quercifòlium* *Michx.* — Not climbing; leaves entire, or variously and irregularly sinuatedly toothed, or lobed. The *R.* Toxicodéndron of the London gardens, readily distinguished from the two following varieties, by its deeply sinuated, or almost pinnatifid, leaflets. It grows to the height of

3 ft. to 4 ft. with several upright stems, forming a small bush, from the base of which proceed many prostrate runners.

⁂ ♃ R. *T.* 2 *radìcans* Tor. & Gray. *R. T.* α vulgàre *Michx.*; *R.* T. β radìcans *Tor.* (Bot. Mag. t. 1806. and N. Du Ham. 2. t. 48., and our *figs.* 288. and 289.) — Climbing; leaves more commonly entire, or nearly so. The *R*hús radìcans of the London gardens, readily known from the preceding variety by its trailing or climbing stem, and by its entire leaflets.

288. *R*hus Toxicodéndron radìcans.

289. *R*hús Toxicodéndron radìcans.

⁂ ♃ R. *T.* 3 *microcárpon* Tor. & Gray *R.* Toxicodéndron γ microcárpon *Michx.* — Leaves oval-oblong; fruit smaller.

These varieties, which have been hitherto, for the most part, treated as belonging to two species, *R.* radìcans and *R.* Toxicodéndron, are common in many parts of North America; sometimes covering the surface of the ground to a great extent, and at other times climbing to the top of the highest trees, and penetrating the bark with their fibrous roots. The terrible effects of their poison are frequent, and well authenticated.

## § iii. *Lobàdium* Dec.

*Sect. Char.* Leaf of 3 leaflets, and palmately disposed on the tip of the common petiole, cut in a serrate manner; the teeth large. Flowers in a dense catkin. Sexes polygamous. There are two-lobed glands under the ovary, alternate with the stamens. Styles 3, short, distinct. Drupe rather compressed, villose. Nut smooth. Aromatic shrubs. (*Dec. Prod.*, ii. p. 72.)

### ⁂ 8. *R.* AROMA'TICA *Ait.* The aromatic Rhus, *or Sumach.*

*Identification.* Ait. Hort. Kew., 1. p. 367.; Dec. Prod., 2. p 73.; Don's Mill., 2. p. 75.; Tor. and Gray, 1. p. 219.

*Synonymes.* *R.* suavèolens *Ait.*; *R.* trifolìàta *Lodd. Cat.*, *R.* canadénsis *Marsh.*; Lobàdium aromàticum *Raf.*; Turpínia Raf.; Schmàlzia Desv.; Myrica trifolìàta *Hort.*; Toxicodéndron crenàtum *Mill. Dict.* No. 5.

*Engravings.* Turp. in An. du Mus., 5. p. 445. t. 30.; and our *fig.* 290.

*Spec. Char., &c.* Leaves pubescent when young (at length coriaceous, and often glabrous); leaflets sessile, rhomboid-ovate, unequally and incisively toothed, the terminal one narrowed at the base. (*Tor. and Gray.*) A small aromatic shrub. Pennsylvania to Carolina and Georgia. Height 1 ft. to 4 ft. Introd. in 1772. Flowers small, yellow; April and May. Fruit small, light red; ripe in September.

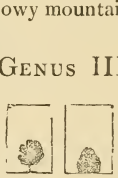
290. *R*hus aromatica.

Drupes the size of a small pea, light red, more

or less hispid, slightly compressed, agreeably acid. This species varies greatly in the degree of pubescence of the leaves. *R.* suavèolens *Ait.* only differs in having the leaves almost glabrous. H. S.

*Other Species of* Rhús.—Several names are in the London catalogues, which are synonymes of kinds which have been lost, or are not distinctly known by us. *R.* pùmila *Michx*, *R.* diversíloba *Tor. & Gray* (*R.* lobàta *Hook.*), *R.* trilobàta *Nutt.*, *R.* laúrina *Nutt.*, are described in Torrey and Gray's *Floras*, but they have not yet been introduced; or, if they have, they exist only as small plants. Some plants of *R*hús have been raised in the Hort. Soc. Garden, from seeds sent from the snowy mountains of Nepal, which will doubtless prove hardy.

## Genus III.



### DUVAU'*A* Kth. The Duvaua. *Lin. Syst.* Polygàmia Monœ'cia.

*Identification.* Kth. Gen. Tereb., p. 8.; Dec. Prod., 2. p. 74.; Don's Mill., 2. p. 76.
*Synonymes.* Schìnus sp. *Andr.*; Amỳris sp. *Cav.*
*Derivation.* Called Duvaúa, after *M. Duvau*, a French botanist, known as the editor of the original edition of Richard's *Analyse du Fruit*; and for some observations on *Verónica.*" (*Lindley*, in *Bot. Reg.*, t. 1568.)

*Gen. Char. Calyx* persistent, with 4—5 segments. *Corolla* of 4—5 concave petals. *Sexes* monœciously polygamous. *Stamens* 8—10, inserted under a pitcher-shaped calycine disk, which has as many sinuses and as many teeth as there are stamens: these are opposite the sinuses, half of them opposite the petals, and half alternate with them. *Anthers* in the fruit-bearing flowers barren. *Ovary* conical. *Styles* 3—4. *Stigmas* capitate. *Fruit* a globose drupe, with a leathery nut.—Chilian trees and shrubs, becoming spiny as they advance in growth. (*Dec. Prod.*)

*Leaves* simple, alternate, exstipulate, evergreen; generally oblong or ovate, toothed, small. *Flowers* in axillary racemes, greenish yellow.—There are four species in cultivation, which are all very handsome evergreen bushes, with bright shining foliage.

The foliage emits, when bruised, a strong but not unpleasant odour, of the nature of turpentine. The leaves of D. ovàta, and, doubtless, those of every species of Duvaúa, when thrown upon water, move about in a manner which may be compared to a fleet of ships employed in manœuvring, or to persons engaged in dancing. Seeds have been produced plentifully in the Hort. Soc. Garden by D. depéndens, trained to a south wall; and seeds of D. latifòlia are often imported from Chili. Cuttings of the ripe wood root in sand, under a bell-glass, in a gentle heat. D. depéndens was but little injured at Kew, in the Chelsea Botanic Garden, and in the Hort. Soc. Garden, by the winter of 1837–8; and D. ovàta was not injured at all, and may be considered as an evergreen shrub, as hardy in the climate of London as Aristotèlia *Mácqui.*

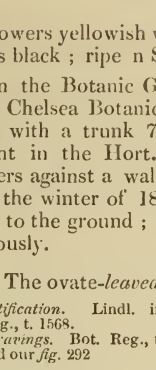
#### ♠ ♀ 1. D. depe'ndens *Dec.* The drooping-*branched* Duvaua.

*Identification.* Dec. Prod., 2. p. 74.; Don's Mill., 2. p. 76.
*Synonymes.* Amỳris polỳgama *Cav. Icon.* 3. p. 20. t. 239.; Schìnus depéndens *Ort. Decad.* 8. p. 102.; Duvaúa depéndens α *Hook. Bot. Misc.* 2 p. 176.
*Engravings.* Cav. Ic., t. 239.; Bot. Reg., t. 1573.; and our *fig.* 291.

*Spec. Char., &c.* Leaves mostly, especially upon the flower-bearing branches, obovate, and very obtuse, or even emarginate, with scarcely any denticulations. Racemes scarcely exceeding the leaves in length. Stamens mostly 10. Flowers smaller than those of D. ovàta. (*Lindl.*) An evergreen tree; in British gardens a wall shrub. Chili. Height in England 10 ft. to 12 ft.

Introduced in 1790. Flowers yellowish white ; June and July. Berries black ; ripe n Sept.

There is an old plant in the Botanic Garden at Kew, and a tree in the Chelsea Botanic Garden, which is 12 ft. high, with a trunk 7 in. in circumference. The plant in the Hort. Soc. Garden passed seven winters against a wall with a southern exposure, till the winter of 1837–8, when it was killed down to the ground ; but it has sprung up again vigorously.



291. Duvaúa depéndens.

* ♀ 2. D. OVA TA *Lindl.* The ovate-*leaved* Duvaua.

292. Duvaúa ovàta.

*Identification.* Lindl. in Bot. Reg., t. 1568.
*Engravings.* Bot. Reg., t. 1568.; and our *fig.* 292

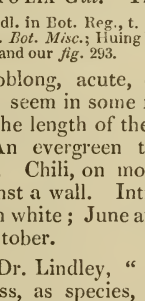
*Spec. Char., &c.* Leaves ovate, toothed, in most acute at the tip, in some obtuse. Racemes a little longer than the leaves. Stamens mostly 8. (*Lindl.*) An evergreen tree ; in British gardens a shrub. Chili, on mountains. Height in the climate of London 6 ft. to 10 ft. against a wall. Introduced in 1825. Flowers yellowish white ; June and July. Berries black ; ripe in September.

Probably a variety of the preceding species. It was wholly uninjured by the winter of 1837–8, in the Horticultural Society's Garden.

* ♀ 3. D. LATIFO`LIA *Gill.* The broad-leaved Duvaua.

*Identification.* Gillies MSS. ; Lindl. in Bot. Reg., t. 1580.
*Synonymes.* D. depéndens γ *Hook. Bot. Misc.*; Huinghan, *Chili.*
*Engravings.* Bot. Reg., t. 1580. ; and our *fig.* 293.

*Spec. Char., &c.* Leaves oblong, acute, coarsely toothed, so waved as to seem in some measure plicate. Racemes dense, the length of the leaves. Stamens 8. (*Lindl.*) An evergreen tree ; in British gardens a shrub. Chili, on mountains. Height 6 ft. to 12 ft. against a wall. Introduced in 1826. Flowers greenish white ; June and July. Berries black ; ripe in October.



293. Duvaúa latifòlia.

" Whatever," observes Dr. Lindley, " may be thought " of the distinctness, as species, " of D. ovàta and D. depéndens, there can be no doubt that D. latifòlia is a totally distinct species ; for not only are the leaves, in their outline, surface, and colour, and the whole plant in its habit, very different, but we find it maintain all its peculiarities unchanged when raised from seeds."

*Other Species of Duvaúa.*—*D. dentàta* Dec., Schìnus dentàta *Bot. Rep.*, was introduced in 1795, and is doubtless as hardy as any of the above kinds ; since all of them are safest when planted against a wall. *Duvaúa sinuàta* Lindl. appears equally hardy with D. depéndens in the Hort. Soc. Garden. It differs from the others in producing the flowers before the leaves, and in being deciduous. All the species well deserve culture as evergreen bushes, in shrubberies where the soil is dry and sandy, the situation sheltered, and the surface sloping to the south. A concurrence of circumstances of this kind is not unfrequent in country residences, both in England and Scotland ; and two examples which occur to us at the moment we are writing are, Bury Hill in Surrey, and Blair Drummond in Stirlingshire.

## Order XXV. LEGUMINA'CEÆ.

*Ord. Char.* *Calyx* with 5 divisions, either partitions, teeth, or clefts, the odd one anterior to the axis of inflorescence. *Fruit* a legume. *Seed* with the radicle next the hilum. (*Lindl.*)—Trees and shrubs natives of every climate.

*Leaves* alternate, stipulate, generally compound; deciduous, or sometimes evergreen; petiole tumid at the base. *Stipules* 2 at the base of the petiole, and 2 at the base of each leaflet. *Pedicels* usually articulated, with 2 bractlets under the flower.

The name of Leguminàceæ is applied to this extensive and truly natural order, on account of the seeds of all the species being produced in leguminous pods, bearing more or less resemblance to those of the common pea or bean; and quite different from the siliquose pods of cruciferous plants.

The ligneous species are trees and shrubs, for the most part deciduous; and they are disposed through almost every part of the world. The order contains some of our finest ornamental shrubs and low trees, such as Robín*ia*, *Cý*tisus, Wistàr*ia*, *G*enísta, *U*'lex, Amórpha, Halimodéndron, *A*càcia, Gledítsch*ia*, *C*ércis, and various others. It also contains some considerable trees, which belong to the genera Robín*ia*, Gledítsch*ia*, *Sophòra*, &c. The genera containing hardy ligneous plants are in number twenty-three, which, after De Candolle and G. Don, we place in characterised sections, and ascribe to them short characters, that are more or less contradistinctive.

### Sect. I. *Sopho'reæ.*

*Sect. Char.* Corolla, in most, papilionaceous. Stamens 10, with the filaments distinct. Legume not jointed. Cotyledons flat, leafy. Embryo with the radicle beside the edges of the cotyledons. Leaves simply pinnate, or simple.

*Sopho'ra* R. Br. Legume necklace-shaped, including many seeds. Leaf with more than three leaflets.

Virgi'lia Lam. Legume compressed, including many seeds. Leaf with more than three leaflets.

Pipta'nthus *Swt.* Legume compressed, including 6 seeds. Leaf with its leaflets 3.

### Sect. II. *Lo'teæ.*

*Sect. Char.* Corolla papilionaceous. Stamens 10, the filaments of all connate, or those of 9 connate, and that of one distinct. Legume not jointed. Embryo with the radicle beside the edges of the cotyledons. The cotyledons flattish; in germination, converted into leaves furnished with stomata. Leaves simply pinnate, or simple.

*U'lex* *L.* Calyx 2-parted, 5-toothed. Legume oval-oblong, turgid, scarcely longer than the calyx, containing but few seeds, though the ovules are many. Habit spiny.

*Spa'rtium* *Dec.* Standard roundish. Keel acuminate. Branches rush-like. Leaf simple.

*Geni'sta* *Lam.* Standard oblong-oval. Keel oblong, not wholly including the stamens and pistils. Leaves with 3 leaflets, or, in some, simple.

*Cy'tisus* *Dec.* Standard ovate. Keel very obtuse, including the stamens and pistil. Leaves, in all, with three leaflets.

Adenoca'rpus *Dec.* Stamens with the filaments connate. Legume bearing stalked glands all over it.

*Ono'nis* *L.* Calyx with 5 linear segments. Standard striate. Legume containing few seeds; in most, turgid.

Amo'rpha *L.* Corolla consisting of the standard only.

Eysenha'rdtia *H. & B.* Corolla with the standard, and 2 keel petals distinct.

Robi'*nia* Dec. Legume flat; that edge to which the seeds are attached margined. Leaf impari-pinnate.

*CARAGA'NA* Lam. Legume rather cylindrical. Leaf abruptly pinnate.

HALIMODE'NDRON *Fisch.* Legume stipitate, inflated, bladdery. Leaf abruptly pinnate.

CALO'PHACA *Fisch.* Stamens with the filaments of 9 connate, that of one distinct. Legume sessile, with concave valves bearing hairs, some soft, some rigid and glanded.

*C*OLU'TEA *R. Br.* Legume stipitate, much inflated, glabrous.

*A*STRA'GALUS *Dec.* Legume with its lower suture so bent in towards the opposite one as to cause the legume to seem, more or less, 2-celled.

Sect. III. *H*EDYSA'REÆ.

*Sect. Char.* Corolla papilionaceous. Stamens usually with the filaments connate in one of three modes; the 10 connate; 9 connate and one distinct; or connate by fives: in a few cases all are distinct. Legume dividing transversely into 1-seeded joints, called loments. Embryo with the radicle beside the edges of the cotyledons, which are flattish, and, in germination, are converted into leaves furnished with stomata. Leaves simply pinnate, or simple.

CORONI'LLA *Neck.* Calyx campanulate, usually shorter than the claws of the petals. Carina acute. Stamens diadelphous. Seeds ovate, or cylindrical.

Sect. IV. *P*HASEO'LEÆ.

*Sect. Char.* Corolla papilionaceous. Stamens usually with 9 filaments connate, and one distinct. Legume not jointed, including many seeds, that are separated from one another with a cellular, transverse, membraneous partition, that is in some cases not complete. Embryo with the radicle beside the edge of the cotyledons, which are thick, and, in germination, either remain under ground, or are changed into thick leaves that scarcely have stomata. Leaves simply pinnate, or simple.

WISTA'R*IA* Nutt. Leaf impari-pinnate.

Sect. V. *C*ASSIE'Æ.

*Sect. Char.* Corolla, in most of the species, of equal petals; in some sub-papilionaceous. Stamens with the filaments distinct. Leaves doubly or triply pinnate; in some simple.

GLEDI'TSCH*IA* L. Sexes diœciously polygamous. Corolla of 3—5 equal petals. Legume in most long and narrow. Seeds compressed. Leaves compoundly divided. Bearing prickles in most.

GYMNO'CLADUS *Lam.* Sexes, by defect, diœcious. Corolla of 5 equal petals. Legume compressed and broad. Seeds scarcely compressed. Leaves compoundly divided.

*C*E'RCIS *L.* Sexes hermaphrodite. Corolla sub-papilionaceous, of 5 unequal petals the side ones, or wings, longer than the others. Leaves simple.

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## Sect. I. *SOPHO'REÆ.*

### GENUS I.

*SOPHO'RA* R. Br. THE SOPHORA. *Lin. Syst.* Decándria Monogýnia.

*Identification.* R. Brown in Hort. Kew., ed. 2.; Dec. Prod., 2. p. 95.; Don's Mill., 2. p. 109.
*Synonyme.* *Sophòræ* spec. *Lin. Gen.* No. 508.
*Derivation.* Altered from *sophero*, the Arabic name of a papilionaceous flowering tree.

*Gen. Char.* *Calyx* 5-toothed, campanulate at the base, or somewhat attenuated. *Petals* of the keel usually concrete at the apex. *Legume* somewhat moniliform, wingless, many-seeded. (*Don's Mill.*)

*Leaves* impari-pinnate, with 11—13 leaflets, generally exstipulate. *Flowers* yellow, white, or blue, in simple racemes, or panicles.—The only hardy species are deciduous trees, natives of Japan or China.

### ♆ 1. *S.* JAPO'NICA *L.* The Japan Sophora.

*Identification.* Lin. Mant., 78.; Dec. Prod., 2. p. 98.; Don's Mill., 2. p. 109.
*Synonyme.* *S.* sinica *Rosier Journ. Phys.* 14. p. 248., *Dec. Légum.* t. 4. f. 1.
*Engravings.* Red. in N. Du Ham., 3. t. 21.; Dec. Légum., t. 4. f. 1.; the plate of this species in Arb. Brit. 1st edit., vol. v.; and our *fig.* 294.

*Spec. Char., &c.* Leaves pinnate, with 11—13 leaflets, which are oblong-ovate, acute, and smooth; panicle loose, terminal; pods smooth. A deciduous tree of the middle size. Japan. Height 40 ft. to 50 ft. Introduced in 1763. Flowers cream-coloured; August and September. Pods rarely produced in England. Decaying leaves yellow and green. Naked young wood dark green, like that of Jasmìnum officinàle.

*Varieties.*

♆ S. *j.* 2 *variegàta* Hort. has the leaves variegated, but is not worth cultivating as an ornamental plant.

♆ S. *j.* 3 *péndula* Hort., and the plate of this tree in our 1st edit. vol. v., has pendulous shoots, and is a very remarkable variety. Grafted near the ground, the shoots run along the surface, like those of a trailing plant, to a very great distance from the main stem; in good soil, a shoot extending itself 6 or 8 feet in one season. Grafted at the height of 10 or 20 feet or upwards, the shoots hang down, and form one of the most ornamental of pendulous trees, both in summer and winter.

294. *Sophòra* japónica.

A round-headed tree, readily distinguished in winter by the fine, smooth, dark green bark of its young wood and smaller branches; and, in summer, by the dark blue green of its foliage. In deep free soil, it grows with great rapidity, seedlings attaining the height of 10 or 12 feet in 4 or 5 years; and in 20 or 30 years, in the neighbourhood of London, 30 or 40 feet. There are large specimens in England, which flower freely; but they have never yet ripened seeds: indeed, the tree ripens seeds in France only in the very warmest seasons. The wood is very hard and compact, as much so, it is said, as that of the box. The bark exhales a strong odour, which, it is stated in the *Nouveau Du Hamel*, produces colic and purging on those who prune the

tree, or otherwise work with the wood in a green state. Little appears to be known of the uses of the tree in China and Japan: but it is said that the fruit is employed to dye a fine yellow; and the flowers for dyeing a yellow of so superior a hue, that it is exclusively reserved for dyeing stuffs to be worn by the members of the imperial family. None of the arboreous Leguminàceæ are equal to this tree in beauty of foliage and bark. Its flowers, when they are produced, are also in large terminal compound spikes, and very conspicuous, though much smaller than those of the Robínia viscòsa. One remarkable property in the foliage of the sophora is, that the very hottest and driest seasons do not turn it pale, or cause it to drop off, as heat does that of most of the other pinnated-leaved Leguminàceæ. The pendulous variety is well deserving of culture as an object of singularity and beauty; and, where it is desired to cover a surface with intense green foliage during summer, for example, a dry hillock, a plant of this variety, placed on the centre, will accomplish the purpose effectually. The tree will thrive in any free soil; but, in cold climates, it ought to be placed in one rather poor and dry that it may be compelled to make shorter shoots; which, of course, being less succulent, are more easily ripened. It is generally propagated by seeds imported from France; but, where it is desired to have trees that will soon come into flower, seedling plants should be grafted with scions from a flowering tree. It will grow by cuttings, more especially of the roots, and also by layers.

2. *S.* HEPTAPHY'LLA *L.* The 7-leafleted Sophora.

*Identification.* Lin. Spec., 533.; Dec. Prod., 2. p. 98.; Don's Mill., 2. p. 110.
*Engravings.* Rumph. Am., 4. p. 50. t. 22.; and our *fig.* 295.

*Spec. Char., &c.* Leaflets 7, glabrous. (*Don's Mill.*) A deciduous shrub. China. Height 6 ft. Introduced in 1830. Flowers yellow; October.

There are plants of *S.* heptaphýlla in the Hort. Soc. Garden, which have flowered and appear to be quite hardy, but as they do not exactly agree with Rumphius's figure, especially in the number of leaflets, we wish our engraving to be considered as of doubtful authenticity. The living plants alluded to are sufficiently distinct, and deserve a place in collections.

295. *Sophòra* heptaphýlla.

## GENUS II.

VIRGI'LIA L. THE VIRGILIA. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Lam. Ill., t. 346.; Pers.Ench., 1. p. 453.; R. Brown in Hort. Kew., ed. 2. vol. 3. p. 4.; Dec. Prod., 2. p. 98.; Don's Mill., 2. p. 111.
*Derivation.* Named by Lamarck in honour of the poet *Virgil*, whose *Georgics* entitle him to botanic commemoration.

*Gen. Char. Calyx* 5-cleft. *Petals* 5, about equal in length. *Vexillum* with the edges not reflexed. *Stigma* beardless. *Legume* compressed, oblong, 2-valved, many-seeded. (*Don's Mill.*)

*Leaves* compound, impari-pinnate, deciduous; with 9—11 leaflets. *Flowers* yellow, in racemes. — There is only one hardy species, a deciduous low tree.

♀ 1. V. LU'TEA *Michx.* The yellow-*wooded* Virgilia, *or Yellow Wood.*

*Identification.* Michx. Fil. Arb. Amer., 3. p. 266. t. 3.; Dec. Prod., 2. p. 98.; Don's Mill., 2. p. 112.
*Engravings.* Delaun. Herb. Amat., t. 197.; Michx. Fil. Arb. Amer., 3. p. 226. t. 3.; the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 296.

*Spec. Char., &c.* Leaves pinnate; leaflets 9—11; alternate, ovate, pointed, smooth. A deciduous tree. North America. On the mountains of Cumberland, and the Mississippi. Height in America 40 ft.; 10 ft. to 20 ft. in England. Introduced in 1812. Flowers yellowish white, in pendulous racemes; June to August. Pods never produced in England. Decaying leaves rich yellow. Naked young wood yellowish brown.

The leaves, on young trees, are from 1 ft. to 1½ ft. in length, and on old trees not above half that size. The flowers form white pendulous racemes, a little larger than those of the Robín*ia* Pseùd-*A*càcia, but not so odoriferous. The seeds are like those of the robinia, and, in America, ripen about the middle

296. Virgília lùtea.

of August. In Britain, the tree has flowered in the Chelsea Botanic Garden, and at Hylands in Essex, but has not yet produced pods. An open airy situation is desirable, in order that the tree may ripen its wood; and, to facilitate the same purpose where the climate is cold, the soil ought to be dry rather than rich. In the London nurseries, it is propagated chiefly by American seeds, but it will doubtless grow by cuttings of the roots.

## GENUS III.

PIPTA'NTHUS *Swt.* THE PIPTANTHUS. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Swt. Fl.-Gard., 264.; Don's Mill., 2. p. 112.
*Derivation.* From *piptō*, to fall, and *anthos*, a flower; from the flowers falling off very soon.

*Gen. Char.* *Calyx* bilabiate; lower lip trifid, upper lip 2-lobed; segments soon falling off. *Petals* deciduous. *Vexillum* large, obcordate, rufescent. *Wings* cuneated. *Keel* cucullate, accumbent. *Stamens* 10, free, deciduous. *Stigma* minute. *Legume* broad-linear, compressed, 6-seeded, stipitate. (*Don's Mill.*)

*Leaves* compound, trifoliate, stipulate, sub-evergreen; leaflets elliptical-oblong, acute, broad. *Flowers* large, yellow. — One species only in British gardens.

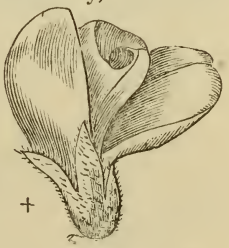
1. P. NEPALE'NSIS *Swt.* The Nepal Piptanthus.

*Identification.* Swt. Fl.-Gard., 264.; Dec. Prod.; Don's Mill., 2. p. 112.
*Synonymes.* Thermópsis laburnifólia *D. Don Prod. Fl. Nep.* p. 239.; *A*nagŷris índica *Wall. MSS.*; Baptísia nepalénsis *Hook. Exot. Fl.* t. 131.
*Engravings.* Hook. Exot. Fl., t. 131.; Swt. Fl.-Gard., t. 264.; and our *figs.* 297. and 298.

*Spec. Char., &c.* Leaves trifoliolate; leaflets elliptical-oblong, acute, broad. Stipules 2, large. A sub-evergreen shrub. Nepal. Height 8 ft. to 10 ft. Introduced in 1821. Flowers rich yellow; May and June. Pod green, turning to brown; ripe in October. Decaying leaves yellow and green. Naked young wood dark green.

The young leaves are silky; and the flowers are of a bright yellow, and are much larger than those of the common laburnum, to which they, and also the leaves and the shoots, bear a general resemblance. In British gardens it may be considered as rather tender, and not of many years' duration; nevertheless, in fine seasons, it ripens abundance of seeds. It may be propagated by cuttings of the roots, and of the shoots, as well as by seeds or layers. In most of the counties north of London, the safest situation for it will be against a wall; and it well deserves a place there, on account of its luxuriant deep green foliage, and large bright yellow flowers. *A*nagŷris índica *Wall.*, Mr. Gordon considers as differing a little from the species.

297. P. nepalénsis.


298. P. nepalensis, nat. size.

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## Sect. II. *Lo`*TEÆ.

## GENUS IV.

### *U`*LEX *L.* THE FURZE. *Lin. Syst.* Monadélphia Decándria.

*Identification.* Lin. Gen., No. 881.; Lam. Ill., t. 621.; Dec. Prod., 2. p. 144.; Don's Mill., 2. p. 148.
*Synonymes.* Ajonc, *Fr.*; Hecksaame, *Ger.*
*Derivation.* Said to be derived from *ac*, Celtic, a point; in reference to the prickly branches.

*Gen. Char.* *Calyx* bibracteate, bipartite, one of the lips 3-toothed, the other bidentate. *Stamens* all connected. *Legume* oval-oblong, turgid, many-ovulate, but few-seeded, hardly longer than the calyx.

*Leaves* simple, linear, caducous, often changing into spines. *Flowers* solitary, yellow.

Branchy spinous shrubs, evergreen from the colour of the bark, with yellow flowers, natives of Europe, which will grow in any tolerably good soil that is dry; and are readily propagated by seeds, or by cuttings planted in sand.

1. *U*'LEX EUROPÆ'A *L.* The European, *or common*, Furze, *or Whin.*

*Identification.* Lin. Spec., 1045. var. α; Dec. Prod., 2. p. 144.; Don's Mill., 2. p. 142.
*Synonymes.* Genista spinòsa *L'Obel*; *U.* grandiflòra *Pour.*; *U.* vernàlis *Thore*; Whin, Gorse, Prickly Broome; Ajonc common, Jonc marin, Jomarin, or Genêt épineux, *Fr.*
*Engravings.* Eng. Bot., t. 742.; and our *figs.* 299. and 300.

*Spec. Char., &c.* Leaves lanceolate, linear. Branchlets villous. Bracteas ovate, loose. Calyx pubescent. An erect compact bush, evergreen, from the colour of the bark. Middle and South of Europe, on gravelly soils; and in Britain on hills. Height 2 ft. to 5 ft.; in sheltered woods, 10 ft. Flowers rich yellow; February to May, and in mild winters September to May. Pod brown; ripe in August.

*Varieties.*

U. *e.* 2 *flòre plèno* has double flowers, and is a splendid plant when profusely covered with blossoms, well adapted for small gardens, and easily increased by cuttings.

U. *provinciàlis* and U. *stricta* are probably only varieties of *U.* europæ'a, but, as they may possibly belong to *U.* nàna, we have kept them distinct, and treated them as botanical species or races.

The common furze, in Caernarvonshire, grows to the height of 1500 ft. above the sea, in open, airy, warm situations; but in damp shaded valleys, not higher than 600 ft. In the North of England, according to Winch, it forms fine fox covers at 800 or 900 feet; and grows, in warm sheltered situations, at 2000 ft. At Inverness, it is found to the height of 1150 ft. About Tongue, in the north-west of Sutherland, where it was introduced, but is now naturalised, it scarcely attains 350 ft. of elevation. The young branches, bruised, and given to cattle and horses in a green state, are found highly nutritive as fodder; and for this purpose the variety *U.* (e.) stricta is preferable, on account of the absence of prickles. The use of furze for hedges is chiefly desirable in situations where the hawthorn or the holly will not thrive; because the furze is not a plant of long duration. As a shelter to young trees, it is sometimes sown where acorns, beech masts, or chestnuts are to be sown, or young trees are to be planted. The use of furze in a dead state is chiefly as fuel for bakers' ovens, for brick, tile, and lime kilns, and for lighting fires. In Scotland, it is sometimes used in kilns for drying oats. In England, a common use of it is to weave into the sides of hovels for sheltering cattle, to prevent them from rubbing against them. In gardens, the points of the shoots are chopped into pieces of about 1 in. in length, and dropped into the drills in which peas are sown, before the seeds are covered; and, the earth being drawn over them and trod down, they are found effectually to resist the attacks of mice and small birds. In France, the chopped branches are mixed with cow-dung, and the mixture afterwards formed into bricks, which are dried in the sun, and used as fuel. The seeds, if they could be procured in sufficient quantity, would, if ground into flower, form a nutritive food both for cattle and swine: they retain their vital property for several years. In Britany, large heaps are formed of alternate layers of turf and dried furze branches; and, the whole being set fire to, the ashes are preserved as manure. In many parts of both France and England, the ashes of dry furze branches are used as a lye for washing linen. A pound of seeds, which, in London, costs from 8*d.* to 1*s.*, will sow an acre broad-cast, or a drill of a

299. *U*'lex europæ'a.

300. *U*'lex europæ'a.

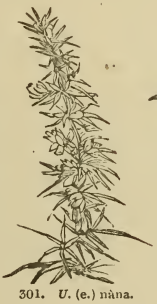
mile in length as a hedge. The double-flowered and the fastigiate varieties are propagated by cuttings: the latter, when wanted for agricultural purposes, may be bedded in, like box, in a sandy soil rather moist, in the beginning of September; and by the following spring they will be fit to transplant.

### 2. *U.* (E.) NA'NA *Forst.* The dwarf Furze.

*Identification.* Smith Eng. Fl., 3. p. 266.; Eng. Bot., t. 743.; Dec. Prod., 2. p. 144; Don's Mill. 2. p. 148.; Webb Iter Hispan., 48.
*Synonymes.* *U.* minor *Roth Cat.* 1. p. 83.; *U.* europæ'us β *Lin. Spec.* 1045.
*Engravings.* Eng. Bot., t. 743.; and our *figs.* 301. and 302.

*Spec. Char., &c.* Branches and leaves smooth, the latter linear. Calyx glabrous, with spreading narrow teeth. According to Smith, the essential character consists in the more distinct and spreading calyx teeth, and the more minute, rounded, close-pressed, and often hardly discernible, bracteas. An evergreen, compact, low, spiny shrub. Britain and the western parts of France, on poor gravelly soils. Height 2—3 ft. Flowers rich yellow; August to December. Pods brown; ripe in December.

A very distinct sort, though, from the very different and more luxuriant habit which the plant has when cultivated in gardens on rich soils, we have no doubt of its being only a variety of *U.* europæ'a. In its native habitats, it is easily distinguished from that species by its low growth, seldom exceeding 2 ft. in height; by its being much smaller in all its parts; by its decumbent habit; and by its flowering from the end of August till the beginning of December, and seldom at any other season. Very neat low hedges and edgings may be formed of it.


301. *U.* (e.) nàna.

302. *U.* (e.) nàna.

### 3. *U.* (E.) PROVINCIA'LIS *Lois.* The Provence Furze.

*Identification.* Lois. Not., 105.; Dec. Prod., 2. p. 144.; Don's Mill., 2. p. 148.; Webb Iter Hispan., 48.
*Synonyme.* *U'lex austràlis Clement.*
*Engravings.* Lois. Not., t. 6. f. 2.; and our *fig.* 303.

*Spec. Char., &c.* Calyx rather pubescent, with lanceolate distant teeth. An erect, evergreen, compact shrub; intermediate, in all its parts and in its habit, between *U.* europæ'a and *U.* nàna. Provence, Andegavany, and Mauritania. Height 2 ft. to 4 ft. Introduced in 1820. Flowers rich yellow; August to December. Pod brown; ripe in December.

Whatever doubts there may be as to *U.* nàna being a distinct species, there can be none as to this sort being only a variety. As an evergreen shrub, flowering freely; it well deserves a place in collections.

303. *U.* provinciàlis

### 4. *U.* (E.) STRI'CTA *Mackay.* The upright-*growing, or Irish,* Furze.

*Identification.* Mackay's List of Irish Plants; Hook. Brit. Fl., p. 317.
*Synonymes.* *U.* hibérnica *Don's Mill.* 2. p. 148.; *U.* fastigiàta *Hort.*
*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* Habit erect, narrow, and compact. Spines few or none; and what there are, weak, branched, leafy, and pubescent. An erect, compact, evergreen shrub. Ireland. Height 6 ft. to 10 ft. Introduced in 1815. Flowers yellow, rarely produced; August to December. Pod brown; ripe in December.

Discovered in the Marquess of Londonderry's Park, in the county of

Down, in 1815, or before. It is very upright in its growth, and attains the height, in good soils, of from 6 ft. to 10 ft. in as many years. Its branches are so soft and succulent that sheep and cattle eat them without injuring their mouths, and are very fond of them. It forms excellent garden hedges, and, in rather moist climates, is a most excellent forage plant, as has been already stated under *U.* europæ'a. It only rarely flowers, and has very seldom produced seeds ; but it is easily propagated by cuttings.

*Other Species of* U'*lex.* — U. *genistoìdes* Brot., *U.* mìtis *Hort.*, Stauracánthus aphýllus *Link*, is a leafless shrub, with the habit of *U*'lex ; a native of Portugal in sandy pine woods ; and differing from *U*'lex nàna chiefly in the spines branching into two small ones at the sides. It was introduced in 1823 ; and grows to the height of 1 ft. to 2 ft. It is rather tender in the climate of London, but sometimes stands the winter among rockwork.

## Genus V.

### SPA'RTIUM *Dec.* The Spartium, *or* *Spanish Broom.* *Lin. Syst.* Monadélphia Decándria.

*Identification.* Lin. Sp., 995. ; Dec. Prod., 2. p. 145. ; Don's Mill., 2. p. 148.
*Synonymes.* Spartiánthus *Link Enum.* 2. p. 223. ; Genìsta sp. *Lam.* and *Mœnch* ; Sparzio, *Ital.*
*Derivation.* From *sparton*, cordage ; in allusion to the use of the plant in early ages generally, and in Spain, even to the present day, for making ropes.

*Gen. Char., &c.* *Calyx* membranous, spathaceous, cleft above, 5-toothed at the apex, somewhat labiate. *Corolla* with a roundish complicated vexillum, and an acuminated keel. *Petals* a little agglutinated, but partable. *Stamens* monadelphous. *Legume* compressed, many-seeded, glandless. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, caducous ; lanceolate. *Flowers* in terminal racemes, large, distant, and yellow. — A shrub, a native of Spain and Portugal.

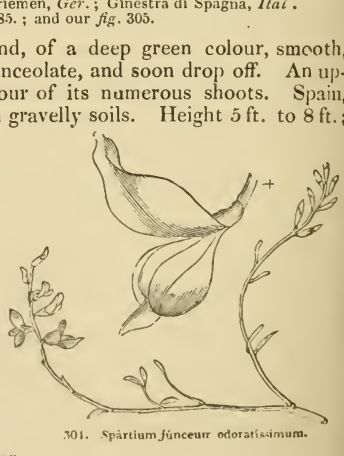
✻ 1. *S.* Ju'nceum *L.* The Rush-*like* Spartium, *or Spanish Broom.*

*Identification.* Lin. Sp., 995. ; Dec. Prod., 2. p. 145. ; Don's Mill., 2. p. 148.
*Synonymes.* Genìsta júncea *Lam.* and *Du Ham.* ; *G.* odoràta *Mœnch* ; Spartiánthus *Júnceus* *Mœnch* ; Genèt d'Espagne, *Fr.* ; Binsenartige Pfriemen, *Ger.* ; Ginestra di Spagna, *Ital.*
*Engravings.* N. Du Ham., 2. t. 22. ; Bot. Mag., t. 85. ; and our *fig.* 305.

*Spec. Char., &c.* Branches upright, round, of a deep green colour, smooth, and with but few leaves, which are lanceolate, and soon drop off. An upright shrub, evergreen from the colour of its numerous shoots. Spain, Portugal, and the South of France, in gravelly soils. Height 5 ft. to 8 ft. ; in British gardens 8 ft. to 12 ft. Introduced in 1548. Flowers dark yellow, large ; July to September. Pods brown ; ripe in October. Naked young wood smooth and dark green.

*Varieties.*

✻ S. j. 2 *odoratíssimum* (*S.* odoratíssimum *D. Don Brit. Fl. Gard.* 2. st. 390. ; *S.* acutifòlium *Lindl. Bot. Reg.* ; and our *fig.* 304.) has the flowers sweet-scented, and the leaves more acute than those of the species. Raised from Turkish seeds.



304. Spártium Júnceum odoratíssimum.

✻ S. j. 3 *flòre plèno* has double flowers.

In Italy and the South of France a very good cloth is manufactured from the fibres of this plant. Both in Spain and France, the shoots are used for forming baskets, and for tying up vines and other fruit trees. The bees are said to be very fond of the flowers; and the seeds are eaten with great avidity by poultry, partridges, &c. Medicinally, the flowers and leaves, in infusion, act as an emetic, or, in a larger quantity, as an aperient. In Britain, the plant is solely regarded as an ornamental shrub. Seeds are produced in abundance, and they will come up in any soil that is tolerably dry. In the nursery, they ought to be transplanted every year, as they are apt to form long taproots and very few fibres.

305. Spártium júnceum.

## Genus VI.

GENI'STA *Lam.* The Genista. *Lin. Syst.* Monadélphia Decándria.

*Identification.* Lam. Dict., 2. p. 616.; Ill. t. 619.; Dec. Prod., 2. p. 145.; Don's Mill., 2. p. 148.
*Synonymes.* Genísta, et Spártium, spec. *Lin.*; Genêt, *Fr.*; Ginster, *Ger.*; Ginestra, *Ital.*

*Gen. Char.* *Calyx* bilabiate, upper lip bipartite, lower one tridentate, or 5-lobed, the three lower lobes nearly joined to the apex. *Vexillum* oblong-oval. *Carina* oblong, straight, not always containing the stamens and pistils. *Stamens* monadelphous. *Legume* compressed, many-seeded. (*Don's Mill.*)

*Leaves* simple or compound, alternate, rarely opposite, stipulate, deciduous or sub-evergreen; lanceolate, linear, or trifoliolate. *Flowers* terminal or axillary, yellow.

The hardy species are deciduous or sub-evergreen shrubs, generally with trifoliolate leaves and yellow flowers; there is a great sameness of character among them, and, though many are quite distinct, yet it is highly probable that the greater number now recorded as species are only varieties. They are chiefly natives of Europe; but a few are found in the North of Africa. As they grow rapidly, and flower freely, especially on soils not wet at bottom, they are desirable plants for newly formed shrubberies, but in general they are not of long duration. A number of the species were formerly included under the genus Spártium and some under Cýtisus, from which they have been separated by Lamarck, whose arrangement, as modified by DeCandolle, we have adopted in the following enumeration.

§ 1. *Unarmed. Leaves all, or for the most part, trifoliolate.*

1. *G.* parviflo'ra *Dec.* The small-flowered Genista.

*Identification.* Dec. Prod., 2. p. 145.; Don's Mill., 2. p. 148.
*Synonyme.* Spártium parviflòrum *Vent. Hort. Cels.* t. 87.
*Engravings.* Vent. Hort. Cels., t. 87.; and our *fig* 306.

*Spec. Char., &c.* Leaf trifoliolate, the petiole very short; and the leaflets usually deciduous, very narrow, glabrous. Flowers in lengthened terminal racemes. Legumes compressed, 1—3-seeded, rather pubescent, being covered with minute closely pressed down, slightly spreading. (*Dec. Prod.*) A deciduous shrub. Levant, near the Gulf of Mundania.

306. Genísta parviflòra

Height 6 ft. to 7 ft. Introduced in 1817. Flowers yellow; May to August. Legume ?. H. S.

### 2. *G.* CA'NDICANS *L.* The whitish Genista.

*Identification.* Lin. Amœn.; Dec. Prod., 2. p. 145.; Don's Mill., 2. p. 149.; Webb Iter Hispan., 50.
*Synonymes.* Cýtisus cándicans *Lin. Sp.*; *C.* pubéscens *Mœnch.*
*Engravings.* Dend. Brit., t. 80.; and our *fig.* 307.

*Spec. Char., &c.* Leaf trifoliolate, petiolate; leaflets obovate, pubescent, with appressed down. Branches angled. Flowers in terminal heads, few in a head. Legume hairy. (*Dec. Prod.*) A hoary sub-evergreen shrub, of short duration. Mogador, Italy, and the Levant. Height 4 ft. to 6 ft. Introduced in 1735. Flowers large, yellow, scentless; April to July. Legume ?.

The great advantage of this species is, that it grows rapidly, and flowers freely.

307. *G.* cándicans.

### 3. *G.* PA'TENS *Dec.* The spreading Genista.

*Identification.* Dec. Prod., 2. p. 145.; Don's Mill., 2. p. 149.; Webb Iter Hispan., p. 50.
*Synonyme.* Spartium pàtens *Cav. Icon.* 2. p. 58., exclusive of the synonyme.
*Engravings.* Cav. Icon., 2. p. 58. t. 176.; and our *fig.* 308.

*Spec. Char., &c.* Branches striated, twiggy, glabrous. Leaves stalked, trifoliolate. Leaflets obovate, pubescent beneath. Flowers in fours, pedicellate, nearly terminal. Legume glabrous, 3—6-seeded. (*Don's Mill.*) A spreading shrub. Spain. On mountains near Albayda, and found by P. B. Webb on Monte Santo in Catalonia. Introduced in ?1830. Height 4 ft. to 8 ft. Flowers yellow; April to July.

It differs from *Cýtisus* pàtens, in the upper lip of the calyx being acutely bipartite; lower lip of three bristles, not with the lips nearly equal and entire.

308. Genista pàtens.

### 4. *G.* TRI'QUETRA *Ait.* The triangular-*stemmed* Genista.

*Identification.* Ait. Hort. Kew., 3. p. 14.; Dec. Prod., 2. p. 146.; Don's Mill., 2. p. 149.
*Synonyme.* *G.* triquetra *Lam.* ?
*Engravings.* Bot. Mag., t. 314.; Dend. Brit., t. 79.; and our *fig.* 309.

*Spec. Char., &c.* Branches 3-sided, decumbent, the younger ones villose. Leaves trifoliolate, simple about the extremities of the branches; leaflets ovate-lanceolate, villose. Flowers in short terminal racemes. (*Dec. Prod.*) A trailing shrub, evergreen from the colour of its shoots. Spain, Italy, and France. Height 6 in. Introduced in 1748. Flowers yellow; April to July. Legume ?.

No shrub is more ornamental on rockwork; and, when trained to a stake and allowed to form a head, or grafted standard high on a laburnum, it forms a singular object, and, when in flower, a most magnificent one. It is also an admirable plant for training against a wall, particularly in dry situations, where it is exposed to the sun.

309. *G.* triquetra.

### 5. *G.* UMBELLA'TA *Poir.* The umbellate-*flowered* Genista.

*Identification.* Poir. Suppl., 2. p. 715.; Dec. Prod., 2. p. 146.; Don's Mill., 2. p. 149.; Webb Iter Hispan., p. 51.
*Synonymes.* Spártium umbellàtum *Desf. Atl.* 2. p. 133., *L'Hérit. Stirp.* 183.; Bolina, *in Andalusia.*
*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* Leaf trifoliolate, its petiole short, its leaflets linear-lanceolate,

and rather silky. Flowers in terminal heads. Calyx hairy, in a silky manner. Corolla and legume silky. Branches glabrous. (*Dec. Prod.*) A low shrub. Barbary, on arid hills; and Spain, in Andalusia, on hill. Height 1 ft. to 2 ft. Introduced in 1779. Flowers yellow; April to Jun

*Variety.*

G. *u.* 2 *capitàta* Dec. *S*pártium capitàtum *Cav. Annal.* 1801, p. 63. — Branches and leaves covered with silky villi. Native of Mogador.

§ 2. *Spinose. Leaves all, or some of them, trifoliolate.*

6. *G.* LUSITA'NICA *L.* The Portugal Genista.

*Identification.* Lin. Sp., 999., exclusive of the synonymes of Clus. and J. Bauh.; Lam. Dict., 2. p. 662., exclusive of the synonymes; Dec. Prod., 2. p. 146.; Don's Mill., 2. p. 450.
*Engravings.* Andr. Bot. Rep., t. 419.; and our *fig.* 310.

*Spec. Char., &c.* Branches spiny, round, becoming striate. Leaves trifoliolate, opposite, upon short petioles; the leaflets linear, folded, somewhat silky. Flowers few, terminal. Calyx very hairy. (*Dec. Prod.*) A very spiny shrub, evergreen from the colour of its young shoots. Portugal. Height 4 ft. Introduced in 1771. Flowers yellow; March to May. Legume ?.

310. *G.* lusitánica.

Remarkable for having opposite leaves and branches; a character not common among Leguminàceæ.

7. *G.* (L.) RADIA'TA *Scop.* The rayed-*branched* Genista.

*Identification.* Scop. Carn., No. 871.; Dec. Prod., 2. p. 146.; Don's Mill., 2. p. 149.
*Synonymes.* Spártium radiàtum *Lin. Sp.* 996., *Mill. Icon.*, *Sims Bot. Mag.*; *G.* ilvénsis *Dalech.*
*Engravings.* Mill. Icon., t. 249. f. 1.; Bot. Mag., t. 2260.; and our *fig.* 311.

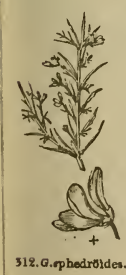
*Spec. Char., &c.* Branches angled, grouped, glabrous. Leaf trifoliolate, almost sessile, opposite, the leaflets somewhat silky. Flowers in terminal heads, 2—4 in a head. Corolla and legume silky. The old branches show a tendency to become spiny. The legumes are oval, short, compressed, pointed with the style, and include two seeds. (*Dec. Prod.*) A low shrub, of short duration, evergreen from the colour of its young shoots. Italy, Carniola, and the Vallais. Height 2 ft. to 4 ft. Introduced in 1758. Flowers yellow; June and July. Legume ?.

*Variety.*

G. (*l.*) *r.* 2 *umbellàta*, *G.* umbellàta *Poir.*, *S*pártium umbellàtum *Desf.*, appears, from a plant that was in the Hort. Soc. Garden in 1837, to belong to this species.

311. *G.* (l.) radiàta.

Differing from *G.* lusitánica principally in being without spines, and having its leaves somewhat longer. Both *G.* radiàta and *G.* lusitánica have a very singular appearance when without their leaves; and, in that point of view, they may be considered as almost as interesting in winter as they are in summer.


312. *G.* ephedróides.

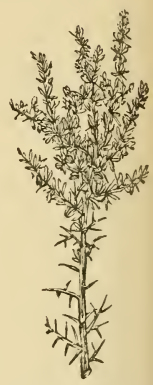
8. *G.* EPHEDRÖI'DES *Dec.* The Ephedra-like Genista.

*Identification.* Dec. Légum. Mém., 6.; Dec. Prod., 2. p. 147.; Don's Mill., 2. p. 150.
*Engravings.* Dec. Légum Mém., 6. t. 36.; Maund's Botanic Garden, t. 498.; and our *fig.* 312.

*Spec. Char., &c.* Leaves some trifoliolate, some simple, few sessile; leaflets linear, almost glabrous. Branches rigid, round, becoming striated and spiny. Flowers in spikes, alternate, yellow. Calyx somewhat pubescent. (*Dec. Prod.*) A shrub,

evergreen from the colour of its young slender shoots. Sardinia. Height 2 ft.; in British gardens 4 ft. Introduced in 1832. Flowers small, yellow; June to September. Legume?.

The whole plant is glabrous, and resembles in appearance *E'phedra distàchya*. Cuttings strike readily.



313. G. triacánthos.

♃ 9. *G.* TRIACA'NTHOS *Brot.* The three-spined Genista.

*Identification.* Brot. Phyt., 130. t. 54.; Dec. Prod., 2. p. 147.; Don's Mill., 2. p. 150.
*Synonyme.* *G.* rostràta *Poir. Suppl.* 2. p. 719.
*Engravings.* Brot. Phyt., t. 54.; and our *fig.* 313.

*Spec. Char., &c.* Leaves sessile, trifoliolate and simple, glabrous. Leaflets linear-lanceolate. Branchlets spiny, branched. Flowers in terminal racemes, few in a raceme. Calyx, corolla, and legume glabrous; legume 1-seeded. The spines are simple, trifid, or branched. (*Dec. Prod.*) A deciduous undershrub. Portugal, on mountains and in woods. Height 2 ft. to 3 ft. Introduced in 1821. Flowers yellow; May to July. Legume?.

*Variety.*

♃ G. *t.* 2 *interrúpta* Dec., *S*pártium interrúptum *Cav. Annal.*, 1801, vol. iv. p. 58., has linear leaflets, and branches usually simple, and shorter than those of the species. It is found wild about Tangier.

314 Genista hórrida.

♃ 10. *G.* HO'RRIDA *Dec.* The horrid Genista.

*Identification.* Dec. Fl. Fr., 4. p. 500.; Dec. Prod., 2. p. 146.; Don's Mill., 2. p. 149.; Webb. Iter Hispan., 51.
*Synonymes.* *S*pártium hórridum *Vahl Symb.* 1. p. 51., exclusive of the synonyme; *G.* erinàcea *Gilib. Bot. Prat.* 2. p. 239.
*Engravings.* Gilib. Bot. Prat., 2. p. 239. icon.; and our *fig.* 314.

*Spec. Char., &c.* Branches grouped, angled, spiny, opposite. Leaves trifoliolate, opposite; the leaflets linear, folded, somewhat silky. Flowers few, almost terminal. Calyx pubescent. (*Dec. Prod.*) A native of the Pyrenees. Height 4 ft. Introduced in 1821. Flowers yellow; May and June. Legume?.

§ 3. *Spinose. Leaves all simple.*

♃ 11. *G.* SYLVE'STRIS *Scop.* The wood Genista.

*Identification.* Scop. Carn., No. 875.; Dec. Prod., 2. p. 148.; Don's Mill., 2. p. 151.
*Synonyme.* *G.* hispánica *Jacq. Icon. Rar.* t. 557.
*Engravings.* Jacq. Icon. Rar., t. 557.; and our *fig.* 315.

*Spec. Char., &c.* Leaves simple, linear-awl-shaped, glabrous above, villose in a closely pressed manner beneath. Spines axillary, branched, slender. Flowers glabrous, disposed in a terminal spiked raceme. Teeth of the calyx almost spiny. The keel longer than the standard and wings. (*Dec. Prod.*) A deciduous undershrub. Carniola and Croatia, on hills. Height 1 ft. to 2 ft. Introduced in 1818. Flowers yellow; June and July. Legume?.

315. Genista sylvéstris.

♃ 12. *G.* SCO'RPIUS *Dec.* The Scorpion Genista.

*Identification.* Dec. Fl. Fr., 4. p. 498.; Dec Prod., 2. p. 148.; Don's Mill., 2. p. 151.; Webb Iter Hispan., 51.
*Synonymes.* *S*pártium *Scórpius Lin. Sp.* 995.; *G.* spinifòra *Lam. Dict.* 2. p. 621.; Scorpion Furze *Gerard.*
*Engravings.* Dend Brit., t. 78.; and our *fig.* 316.

*Spec. Char., &c.* Spiny; spines branched, spreading, striated, glabrous. Leaves simple, very few, oblong, somewhat silky. Flowers glabrous, upon short pedicels, in groups disposed somewhat racemosely; the keel as long as the standard. Legume containing 2—4 seeds. (*Dec. Prod.*) An upright, deciduous, spiny shrub. South of Europe and Barbary, in arid places. Height 2 ft. to 3 ft. Introduced in 1570. Flowers yellow; April and May. Legume ?.

316. G. Scórpius.

A spiny shrub, almost leafless when the shoots are full grown. This species is commonly thought to be the *Scórpius* of Theophrastus.

### ✠ 13. *G.* HISPA'NICA *L.* The Spanish Genista.

*Identification.* Lin. Sp., 999.; Dec. Prod., 2. p. 148.; Don's Mill., 2. p. 151.; Webb Iter Hispan., 68.
*Synonyme.* Spanish Furze, *Hort.*
*Engravings.* Cav. Icon., 3. t. 211.; Lam. Ill., t. 619. f. 3.; and our *fig.* 317.

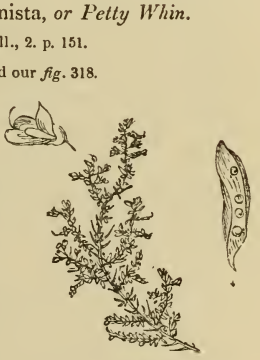
*Spec. Char., &c.* Spiny, except in the flower-bearing branches; spines branched, rigid. Leaves simple, lanceolate, villose. Flowers in a terminal subcapitate raceme. Keel villose, the length of the glabrous standard. Legume oval, including 2—4 seeds; when ripe, rather glabrous. (*Dec. Prod.*) A diminutive undershrub, evergreen from the colour of its shoots. Spain and the South of France. Height ½ ft. to 1 ft. Introduced in 1759. Flowers yellow; June and July. Legume ?.

317. G. hispánica.

### ✠ 14. *G.* A'NGLICA *L.* The English Genista, *or Petty Whin.*

*Identification.* Lin. Sp., 999.; Dec. Prod., 2. p. 149.; Don's Mill., 2. p. 151.
*Synonyme.* *G.* minor *Lam. Fl. Fr.* 2. p. 615
*Engravings.* Eng. Bot., t. 132.; Lobel Icon., 2. p. 93. f. 2.; and our *fig.* 318.

*Spec. Char., &c.* Spiny, except in the flower-bearing branches; spines simple; the whole plant glabrous. Leaves simple, ovate-lanceolate. Flowers in terminal racemes, few in a raceme; the keel longer than the standard and wings. Legume ovately cylindrical, including many seeds. (*Dec. Prod.*) A prostrate deciduous shrub, with woody stems. Native of the Middle and North of Europe; and frequent in Britain, on moist, boggy, heathy commons. Height 1 ft. Flowers yellow; May and June. Legume brown; ripe in August.


318. Genista ánglica.

Cultivated in collections, where it forms a spiny bush about 2 ft. in height.

### ✠ 15. *G.* GERMA'NICA *L.* The German Genista.

*Identification.* Lin. Sp., 995.; Dec. Prod., 2. p. 149.; Don's Mill., 2. p. 151.
*Synonymes.* Scórpius spinòsus *Mœnch Meth.* 134.; Vóglera spinòsa *Fl. Wett.* 2. p. 500.; Bulimacola di Bosco, *Ital.*
*Engravings.* Fuchs Hist., 220. icon.; Hayne Abbild., t. 122.; and our *fig.* 319.

*Spec. Char., &c.* Spiny, except in the flower-bearing branches; spines simple or branched. Leaves simple, lanceolate, slightly hairy. Flowers somewhat villose, in terminal racemes. Keel longer than the standard and wings. Legume ovate, slightly hairy, including 2—4 seeds. (*Dec. Prod.*) A spiny shrub. Europe, in woods and on heaths. Height 2 ft. to 3 ft. Introduced in 1773. Flowers yellow; June to August. Legume brown; ripe in September.

319. Genista germánica.

Variety.

G. g. 2. *inérmis* Dec. is almost without spines.

§ 4. *Unarmed. Leaves all simple.*

16. *G.* PU'RGANS *L.* The purging Genista.

*Identification.* Lin. Sp., 999.; Bull. Herb., 115.; Dec. Prod., 2. p. 149.; Don's Mill., 2. p. 151.
*Synonyme.* Spártium purgans *Lin. Syst.* 474.
*Engravings.* Bot. Cab., 1117.; and our *fig.* 320.

*Spec. Char., &c.* Upright, much branched. Branches round, striate. Leaves simple, very few, lanceolate, almost sessile, somewhat silky. Flowers axillary, solitary, scarcely pediceled. Petals equal, glabrous. The young legume adpressedly pubescent. (*Dec. Prod.*) An upright shrub, evergreen from the colour of its shoots. France, on hills. Introd. 1768. Height 3 ft. to 6 ft. Flowers yellow; June and July. Legume brown; ripe in September.

320. Genista púrgans.

17. *G.* SERI'CEA *Wulf.* The silky Genista.

*Identification.* Wulf. in Jacq. Coll., 2. p. 167.; Dec. Prod., 2. p. 149.; Don's Mill., 2. p. 151.
*Engravings.* Jacq. Icon. Rar., 3. t. 556.; and our *fig.* 321.

*Spec. Char., &c.* Decumbent, with upright round branches. Leaves simple, linear-lanceolate, silky beneath. Flowers terminal, 3 or 4 together, in a sort of raceme. Petals silky, nearly equal. Lobes of the calyx oblong-acuminate; the floral leaves equalling the calyx in length. (*Dec. Prod.*) A decumbent shrub. Height 6 in. Austria and Croatia, in subalpine places near the shore. Introduced in 1812. Flowers yellow; May and June. Legume brown; ripe August.

321. Genista sericea.

18. *G.* APHY'LLA *Dec.* The leafless Genista.

*Identification.* Dec. Prod., 2. p. 149.; Don's Mill., 2. p. 152.
*Synonymes.* Spártium aphýllum *Lin. Fil. Suppl.* 320.; *G.* virgàta *Lam. Dict.* 2. p. 616.
*Engravings.* Pall. Itin. ed. Gall. Append., No. 357. t. 99. f. 2.; and our *fig.* 322.

*Spec. Char., &c.* Branched, upright. Leaves simple, very few, linear, very short. Flowers disposed distantly, in lengthened terminal racemes. Legumes compressed, including 2 seeds; when young, tomentose; when adult, glabrous. (*Dec. Prod.*) Height 3 ft. to 4 ft. in British gardens. Found in Siberia, in deserts, about the Volga. Introd. 1800. Flowers violaceous; June and July. Legume brown; ripe in September.

322. Genista aphýlla

323. Genista monospérma.

19. *G.* MONOSPE'RMA *Lam.* The one-seeded Genista.

*Identification.* Lam. Dict., 2. p. 616.; Dec. Prod., 2. p. 150.; Don's Mill., 2. p. 152.; Webb Iter Hispan., 51.
*Synonymes.* Spártium monospérmum *Lin. Sp.* 995., *Curt. Bot. Mag.* t. 683.; *G. Ræ'tam* Forsk.
*Engravings.* Bot. Mag., t. 683.; and our *fig.* 323.

*Spec. Char., &c.* Branched, upright. Leaves simple, very few, linear-oblong, adpressedly pubescent. Flowers in lateral racemes, few in a raceme. Petals silky, almost equal. Legumes ovate, inflated, membranaceous, glabrous, including 1—2 seeds. (*Dec. Prod.*) An erect shrub, with numerous slender, twiggy, flexile

branches. On the Mediterranean shores, where, in many places, it serves to retain and consolidate the drifting sand. Height 2 ft. to 4 ft. Introduced in 1670. Flowers white ; June and July. Legume brown ; ripe in September.

The leaves and young branches are, in these countries, eaten by sheep and goats ; and the twigs are used for tying vines to stakes, or tying up faggots ; and they are also twisted into ropes.

### 20. *G.* SPHÆROCA'RPA *Lam.* The round-fruited Genista.

*Identification.* Lam. Dict., 2. p. 616. ; Dec. Prod., 2. p. 150. ; Don's Mill., 2. p. 152. ; Webb Iter Hispan., 50.
*Synonyme.* Spártium sphærocárpon *Lin. Mant.* 571.
*Engravings.* Clus. Hist., 1. p. 102. f. 2. ; and our *fig.* 324.

*Spec. Char., &c.* Twiggy, branched. Leaves simple, few, linear, almost glabrous. Flowers in lateral racemes, many in a raceme. Petals glabrous, equal. Legumes ovate, in some measure fleshy, containing 1—2 seeds. Flowers small, and pale yellow. (*Dec. Prod.*) A twiggy shrub. Native of the South of Europe and North of Africa. Height 3 ft. to 4 ft. Introd. 1731. Flowers yellow ; June and July. Legume brown ; ripe in September.

321. Genista sphærocárpa.

### 21. *G.* ÆTHNE'NSIS *Dec.* The Mount Etna Genista.

*Identification.* Dec. Prod., 2. p. 150. ; Don's Mill., 2. p. 152.
*Synonymes.* Spártium æthnénse *Biv. St. Sic. Mant.* 2., *Rafin. Specch.* 1. p. 17., *Sims Bot. Mag.* 2674. ; Spártium trispérmum *Smith* in *Rees's Cycl.* vol. 32. No. 5.
*Engravings.* Bot. Mag., t. 2674. ; and our *fig.* 325.

*Spec. Char., &c.* Upright, very much branched. Leaves simple, few, linear, silky. Flowers in terminal racemes. Petals almost glabrous, nearly equal in length. Legumes obliquely ovate, compressed, containing 2—3 seeds ; when young, pubescent. (*Dec. Prod.*) An erect twiggy shrub. Native of the wooded region of Mount Etna, 3000 ft. —6000 ft. elevation ; growing with *A*cer monspessulànum. (*Presl*, in *Comp. Bot. Mag.*, vol. i. p. 91.) Height 2 ft. to 4 ft. Introduced in 1816. Flowers yellow ; June and July. Legume brown ; ripe in September.

325. Genista æthnénsis

Resembles the preceding species, except that the flowers are twice the size.

### 22. *G.* ANXA'NTICA *Ten.* The Anxantic Genista.

*Identification.* Ten. Fl. Nap. Prod., p. 41. ; Dec. Prod., 2. p. 150. ; Don's Mill., 2. p. 152.
*Synonyme.* *G.* amsántica *Tenore.*
*Engravings.* Fl. Nap., 2. p. 127. t. 66. ; Swt. Fl.-Gar., 2d ser. t. 266. ; and our *figs.* 326. and 327

326. Genista anxántica.

327. Genista anxántica.

328 Genista scariosa.

*Spec. Char., &c.* The whole plant is perfectly glabrous. Stems spreading. Branches angled. Leaves simple, ovate-elliptical, rather coriaceous, veiny. Flowers in racemes. Corolla thrice as

long as the calyx; and about 8 lines long. Legume containing 8—10 seeds. (*Dec. Prod.*) A diffuse shrub. Naples. Height 3 ft. to 4 ft. Introduced in 1818. Flowers yellow; June and July. Legume brown; ripe in September.

*Variety.*

- G. *a.* 2 *scariòsa.* G. scariòsa *Vin.* (Frag. Fl. Ital. 1. t. 8.; and our *fig.* 328.) — An upright shrub, closely resembling the species. Introduced in 1821, and flowering in the Hort. Soc. Garden in June and July. It deserves a place in collections.

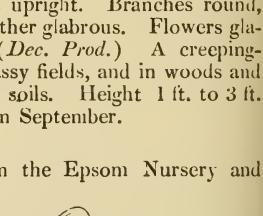
23. *G.* TINCTO'RIA *L.* The Dyer's Broom, *or Green Weed.*

*Identification.* Lin. Sp., 998.; Dec. Prod., 2. p. 151.; Don's Mill., 2. p. 152.
*Synonymes.* *G.* itàlica *Lod. Cat.*; Base Broom, Green Wood, Dyer's Weed, and Wood-waxen; Genêt des Teinturiers, Genêt de Sibérie, *Fr.*; färber-der Ginster, *Ger.*; Bacellina *Ital.*
*Engravings.* Eng. Bot., t. 44.; and our *fig.* 329.

*Spec. Char., &c.* Root creeping. Stems almost upright. Branches round, striated, upright. Leaves simple, lanceolate, rather glabrous. Flowers glabrous, in spiked racemes. Legume glabrous. (*Dec. Prod.*) A creeping-rooted low shrub. Common in Europe, in grassy fields, and in woods and copses, particularly in dry gravelly or sandy soils. Height 1 ft. to 3 ft. Flowers yellow; July. Legume brown; ripe in September.

*Varieties.*

- G. *t.* 2 *flòre plèno.* — There are plants in the Epsom Nursery and the Hort. Soc. Garden.
- G. *t.* 3 *latifòlia* Dec. — Leaves broad-lanceolate. A native of Auvergne, on the Mont d'Or.
- G. *t.* 4 *hirsùta* Dec. — Leaves somewhat villose. Branches upright. A native of sunny meadows.
- G. *t.* 5 *pratènsis* Poll. — Leaves oblong-lanceolate, rather hairy. Branches ascending. Inhabits the mountainous parts of Upper Italy.



329. Genista tinctòria.

It is very common in pastures, in many places, both in England and Scotland; but, when cows feed on it, it is said by Ray to give a bitter taste to their milk. All parts of this plant, and especially the branches and leaves, have long been used by dyers for producing yellow, especially for dyeing wool that is afterwards to be dyed green with woad (*Isàtis* tinctòria *L.*). The plant is not now in cultivation for this purpose; but, in Norfolk and Suffolk, it is still collected in quantities from sandy wastes and commons, and sold to the dyers.

24. *G.* (T.) SIBI'RICA *L.* The Siberian Genista.

*Identification.* Lin. Mant., 571.; Dec. Prod., 2. p. 151.; Don's Mill., 2. p. 152.
*Synonymes.* Genistòides elàta *Mœnch Meth.* 132.; Genista tinctòria var. *N. Du Ham.*
*Engravings.* Jac. Hort. Vind., t. 190.; and our *fig.* 330.

*Spec. Char., &c.* Stems erect; and the whole plant more slender and taller than *G.* tinctòria, of which it is evidently only a variety. An erect shrub. Siberia. Height 6 ft. Introduced in 1785. Flowers yellow; June to August. Legume brown; ripe in September.

330. Genista (t.) sibírica

25. *G.* (T.) OVA'TA *Waldst.* The ovate-*leaved* Genista.

*Identification.* Waldst. et Kit. Pl. Hung., 1. t. 84.; Balb.; Bert.; Tav.; Ten.; Dec. Prod. 2. p 151.; Don's Mill., 2. p. 153.
*Synonyme.* *G.* nervàta *Kit.* in *Litt.*
*Engravings.* Waldst. et Kit. Hung., 1. t. 84.; Dend. Brit., t. 77.; and our *fig.* 331.

*Spec. Char., &c.* Stems numerous, hairy, erectish, somewhat herbaceous, striated, terete. Leaves ovate, or ovate-oblong, and are, as well as the legumes, hairy. Racemes short. Corolla smooth. (*Don's Mill.*) A shrub. Sclavonia and Hungary; and on the hills of Italy, from Piedmont to Naples. Height 2 ft. to 4 ft. Introduced in 1819. Flowers yellow; June to August. Legume brown; ripe in September.

331. Genista (t.) ovàta.

26. *G.* TRIANGULA'RIS *Willd.* The triangular-*stemmed* Genista.

*Identification.* Willd. Sp., 3. p. 939.; Dec. Prod., 2. p. 151.; Don's Mill., 2. p. 153.
*Synonyme.* *G.* tríquetra *Waldst. et Kit. Hung.* 2. p. 165. t. 153., but not of Aiton.
*Engravings.* Waldst. et Kit. Hung., 2. t. 153.; and our *fig.* 332.

*Spec. Char., &c.* Branches smooth, 3-angled, and, as well as the stems, ascending. Leaves lanceolate, and mucronate. Flowers axillary Legume compressed, and mucronate. (*Dec. Prod.*) A shrub. Hungary, on calcareous rocks. Height 1 ft. Introd. in 1815. Flowers yellow; May and June. Legume brown; ripe in August.

332. Genista triangulàris.

Closely resembling *G.* tríquetra, of which, notwithstanding its simple leaves, it may possibly be only a variety; the change not being greater than what takes place in *Fráxinus* excélsior simplicifòlia.

27. *G.* SAGITTA'LIS *L.* The arrow-*jointed* Genista.

*Identification.* Lin. Sp., 998.; Dec. Prod., 2. p. 151.; Don's Mill., 2. p. 153.
*Synonymes.* *G.* herbàcea *Lam. Fl. Fr.*; Genistélla racemòsa *Mœnch Meth.*; Saltzwedèl*ia* sagittàlis *Fl. Wett.* 2. p. 498.
*Engravings.* Jacq. Fl. Aust., t. 209.; Hayne Abbild., t. 117.; and our *fig.* 333.

*Spec. Char., &c.* Stems prostrate. Branches herbaceous, ascending, 2-edged, membranous, somewhat articulated. Leaves ovate-lanceolate. Flowers disposed in an ovate, terminal, leafless spike. Corolla smooth; but the keel is furnished with a villous line on the back. (*Don's Mill.*) A prostrate shrub. Continental Europe, in mountain pastures. Height 6 in. Introduced in 1750. Flowers yellow; May and June. Legume brown; ripe in August.

*Variety.*

G. *s.* 2 *minor* Dec. — A small shrub, having the branches clothed with adpressed pubescence at the apex, as well as the leaves.

333. Genista sagittàlis.

For practical purposes, this may be considered as a herbaceous plant. It is a very distinct, ornamental, and hardy sort; growing and flowering freely.

### ⁂ 28. *G.* DIFFU'SA *Willd.* The diffuse Genista.

*Identification.* Willd. Sp., 3. p. 942.; Dec. Prod., 2. p. 152.; Don's Mill., 2. p. 153.
*Synonymes.* *G.* humifûsa *Wulf.* in *Jacq. Coll.* 2. p. 169.; Spártium procúmbens *Jacq. Icon. Rar.* 3. t. 555., but not of Aiton.
*Engravings.* Jacq. Icon. Rar., t. 555.; and our *fig.* 334.

334. Genista decúmbens.

*Spec. Char., &c.* Branches procumbent from the neck, triquetrous. Leaves lanceolate, and smooth, a little ciliated. Peduncles axillary, erect, and disposed in interrupted fascicles. Corollas and legumes glabrous. (*Dec. Prod.*) A procumbent shrub. Italy and Styria, in exposed places. Height 6 in. Introduced in 1815. Flowers yellow; May and June. Legume brown; ripe in August.

### ⁂ 29. *G.* PROSTRA'TA *Lam.* The prostrate Genista.

*Identification.* Lam. Dict., 2. p 618.; Dec. Prod., 2. p. 152.; Don's Mill., 2. p. 153.
*Synonymes.* *G.* pedunculàta *L'Hérit. Stirp.* 184.; *G.* decúmbens *Dur. Bourg.* 1. p. 299.; *G.* Hálleri *Reyn. Mem.* 1. p. 211. icon.
*Engravings.* Lodd Bot. Cab., 718.; and our *figs.* 335, 336.

*Spec. Char., &c.* Stems diffuse, prostrate. Branches angular, striated, rather

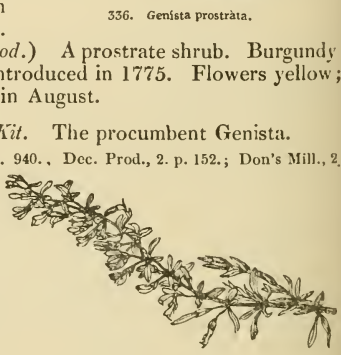
335. Genista prostràta

336. Genista prostràta.

hairy. Leaves ovate-oblong, somewhat hairy beneath, Flowers axillary, on long erect pedicels. Corolla glabrous. Legumes hairy, 3—4-seeded. (*Dec. Prod.*) A prostrate shrub. Burgundy and the Alps of Jura. Height 1 ft. Introduced in 1775. Flowers yellow; May and June. Legume brown; ripe in August.

### ⁂ 30. *G.* PROCU'MBENS *Waldst. et Kit.* The procumbent Genista.

*Identification.* Waldst. et Kit. in Willd. Sp., 3. p. 940., Dec. Prod., 2. p. 152.; Don's Mill., 2. p. 153.
*Engravings.* Bot. Reg., t. 1150.; and our *fig.* 337


337. *G.* procúmbens

*Spec. Char., &c.* Branches procumbent, round, striated, rather downy. Leaves lanceolate, acute, and, as well as the calyxes, downy beneath. Flowers pedicellate, axillary, in threes. Corolla glabrous. (*Dec. Prod.*) A procumbent shrub. Hungary and Moravia. Height 1 ft. Introduced in 1816. Flowers yellow; June to August. Legume brown; ripe in September.

Most likely only a variety of the preceding species.

### ⁂ 31. *G.* PILO'SA *Lin.* The hairy Genista.

*Identification.* Linn. Sp. 999.; Smith's Eng. Fl., 3. p. 263.; Hayne Abbild. der deut. Holz., p. 161.; Dec. Prod., 2. p. 152.; Don's Mill., 2. p. 153.
*Synonymes.* G. rèpens *Lam. Fl. Fr.*; Genistòides tuberculàta *Mœnch Meth.*
*Engravings.* Jacq. Fl. Austr., t. 208.; Hayne Abbild., t. 120.; and our *fig.* 338

*Spec. Char., &c.* Stems procumbent, striated, branched, tuberculated. Leaves obovate-lanceolate, obtuse, folded, and having beneath a close-pressed silky

down. Flowers axillary, on short pedicels. Calyx and pedicels silky. Legumes pubescent, and 3—4-seeded. (*Dec. Prod.*) A procumbent shrub. South of France, Switzerland, Germany, &c.; and Britain, on dry elevated downs or heaths, in Suffolk, Cornwall, and North Wales. Height 1 ft. Flowers yellow; May and June. Legume brown; ripe in Sept.

338. Genista pilosa.

The specific name, pilòsa, is certainly not very appropriate, for there are other species, such as *G.* cándicans, much more hairy.

*Other Species of Genísta.*—G. *spinòsa*, in the Hort. Soc. Garden, is a young plant with trifoliolate leaves, and the side shoots terminating in spines. There are various other names in collections, and a great many in books; but the whole genus is in such a state of confusion, that nothing can be determined with certainty respecting the species, till they are all collected together and cultivated in the same garden and examined.

## Genus VII.

*CY'TISUS Dec.* The Cytisus. *Lin. Syst.* Monadélphia Decándria.

*Identification.* Dec. Prod., 2. p. 153.; Don's Mill., 2. p. 154.
*Synonymes.* *Cýtisus* and *Spártium* sp. *Lin.*, *Lam.* &c.; Cytise, *Fr.*; Bohnenbaum, *Ger.*; Citiso, *Ital.*
*Derivation.* From *Cythnus*, one of the Cyclades, the first of the species known having been found there.

*Gen Char.* *Calyx* bilabiate. *Upper Lip* usually entire; lower one somewhat tridentate. *Vexillum* ovate, large. *Carina* very obtuse, including the stamens and pistils. *Stamens* monadelphous. *Legume* compressed, many-seeded, glandless. (*Don's Mill.*)

*Leaves* trifoliolate, alternate, stipulate. *Flowers* of nearly all the species yellow.— Deciduous or sub-evergreen shrubs of short duration, or low trees; natives chiefly of the Middle and South of Europe.

All the species have trifoliolate leaves, and the flowers are for the most part yellow. The shrubs have the habit of *G*enísta or of *S*pártium, to both which genera they are nearly allied. They are all ornamental, some of them eminently so; and those which have their flowers in terminal racemes are decidedly more elegant than those which have them in close terminal, or in axillary heads. The wood of the laburnum is valuable in turnery and cabinet-work. All the species produce seeds in abundance, by which they are almost exclusively propagated. The species recorded in books are numerous; but, if they were all brought together, and cultivated in the same garden, we question much if a tithe of them would be found specifically distinct.

### § 1. *Alburnòides* Dec.

*Derivation.* From the word *alburnum*, signifying the white inner sap-wood of trees; and applied to this section from the flowers of the species being white.

*Sect. Char.* Calyx campanulate. Pod 1—4-seeded, not dilated at the upper suture. Flowers white. Leaves very few. Branches unarmed. (*Dec. Prod.*, ii. p. 153.)

#### 1. *C. A'LBUS Link.* The white Cytisus, *or Portugal Broom.*

*Identification.* Link Enum., 2. p. 241.; Dec. Prod., 2. p. 153.; Don's Mill., 2. p. 154.
*Synonymes.* Genísta álba *Lam. Dict* 2. p. 623.; *Spártium* álbum *Desf. Fl. Atl.* 2. p. 132.; *Spártium* multiflòrum *Ait. Hort. Kew.* 3. p. 11.; *Spártium* dispérmum *Mœnch Meth.* p. 130.; Genísta multiflòra *N. Du Ham.* 2. p. 76.; Spartium à Fleurs blanches, *Fr.*; weisse Pfriemen, *Ger.*
*Engravings.* N. Du Ham., 2. t. 23.; and our *fig.* 339.

*Spec. Char., &c.* Branches terete, twiggy. Leaves simple, and trifoliolate, sessile. Leaflets linear-oblong, and silky. Flowers in fascicles, disposed in long racemes. Legume 2-seeded, very villous. (*Don's Mill.*) An upright shrub; evergreen, from the colour of its numerous straight parallel young shoots. Portugal and the Levant. Height 5 ft. to 7 ft. Introduced in 1752. Flowers white; May and June. Legume brown; ripe in August.

339. Cytisus álbus.

A very handsome shrub, more especially when covered with its white flowers in May, and when surrounded by hundreds of bees, busily occupied in extracting the honey. In good soil, it is of very rapid growth, attaining the height of 5 or 6 feet in 3 or 4 years; and, in 6 or 8 years, growing as high as 15 or even 20 feet, if in a sheltered situation. Placed by itself on a lawn, it forms a singularly ornamental plant, even when not in flower, by the varied disposition and tufting of its twiggy thread-like branches. When in flower, it is one of the finest ornaments of the garden. Trained to a single stem, its effect is increased; and, grafted on the laburnum, a common practice about Paris, it forms a very remarkable combination of beauty and singularity. Plants are easily raised from seeds.

*Variety.*

♃ C. *a.* 2 *incarnàtus* has flesh-coloured flowers, or flowers very slightly tinged with reddish purple. This variety was introduced in 1818; and reproduces itself from seeds, but it varies much in the quantity of colour in the flowers.

## § ii. *Labúrnum* Dec.

*Derivation.* A name applied by Pliny to some species of *Cýtisus*.

*Sect. Char.* Calyx campanulate. Pod many-seeded, not dilated at the upper suture. Flowers yellow. Branches leafy and unarmed. (*Dec. Prod.*, ii. p. 153.)

♃ 2. *C.* LABU'RNUM *L.* The *common* Laburnum.

340. Cytisus Labúrnum.

*Identification.* Lin. Sp., 1041.; Dec. Prod., 2. p. 153.; Don's Mill., 2. p. 154.
*Synonymes.* *C.* alpinus *Lam. Fl. Fr.* 2. p. 621.; Bean-trefoile Tree, and Peascod Tree, *Gerard*; Pea Tree, *Scotch*; Golden Chain; l'Aubours, faux E'bénier, Arbois, or Arc-Bois, *Fr.*; gemeine Bohnenbaum, *Ger.*; Aborniello, *Ital.*
*Derivation.* The name of L'Aubours, which is given to this tree in Dauphiné and Switzerland, is supposed by Du Hamel to be a corruption of the Latin word *laburnum*. The word Arbois is a corruption of *arc-bois*, the wood of this tree having been used by the ancient Gauls to make their bows; and being still so employed by the country people, in some parts of the Mâconnois, where these bows are found to preserve their strength and elasticity during half a century. The name of Faux E'bénier is applied to the wood, from the blackness of its heart-wood. The German name signifies Bean Tree; and both it and the English and Scotch names of Bean-trefoile and Peascod Tree have reference to the shape of the leaves and the legumes. The name of Golden Chain alludes to the length of the drooping racemes of flowers, which, as Cowper elegantly describes them, are "rich in streaming gold."
*Engravings.* Jacq. Aust., t. 306.; Bot. Mag., t. 176.; N. Du Ham., 5. t. 44.; the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 340.

*Spec. Char., &c.* Branches terete, whitish. Leaves petiolate; leaflets ovate-lanceolate, pubescent beneath. Racemes pendulous, simple. Pedicels and calyxes clothed with closely pressed pubescence. Legume linear, many-seeded, clothed with closely pressed pubescence. A low deciduous tree. Native of Europe, on the lower mountains of the South of Germany, and of Switzerland. Height 20 ft. or upwards. Introduced in 1596. Flowers yellow; May and June. Legume dark brown; ripe in October. Decaying leaves yellow. Naked young wood green.

*Varieties.*

♈ C. L. 2 *péndulum* Hort. has slender pendulous branches.

♈ C. L. 3 *quercifòlium* Hort., *C. L.* 2 incìsum, has sinuated leaflets, not unlike the leaves of the common oak. (See the plate of this variety in *Arb. Brit.*, 1st edit., vol. v.; and our *fig.* 341.)

341. Cytisus Labúrnum quercifòlium.

♈ C. L. 4 *fòliis variegàtis* has variegated leaves; but it is a plant of no beauty, and rarely seen in collections.

♈ C. L. 5 *frágrans* Hort.—Flowers fragrant. Wherever a number of laburnums are found in flower together, whether of this or the other species, the scent of the blossoms will be found to differ very considerably, and occasionally one may be found which may be termed fragrant; hence the origin of this variety.

♈ 3. *C.* (*L.*) ALPI'NUS *Mill.* The Alpine, *or Scotch*, Laburnum.

*Identification.* Mill. Dict., No. 2.; Dec. Prod., 2. p. 153.; Don's Mill., 2. p. 154.
*Synonymes.* *C.* Labúrnum β *Ait.*, *Lam.*, *Dec.*, *Fl. Fr.*; Cytisus angustifòlius *Mœnch Meth.* 145;

*C. Labúrnum* var. latifòlium *Pers.* and *Du Mont*; Cytise des Alpes, l'Aubours, *Fr.*; Alpen Bohnenbaum, *Ger.*; Maggio Ciondolo, *Ital.*
*Engravings.* Waldst. et Kit. Hung., 3. t. 260.; the plate of this tree in Arb. Brit., 1st edit., vol. v and our *fig.* 342.

342. *Cytisus* (*Labúrnum*) alpìnus.

*Spec. Char., &c.* Branches glabrous and terete. Leaves petiolate; leaflets ovate-lanceolate, rounded at the base. Racemes pendulous. Pedicels and calyxes puberulous. Legumes glabrous, few-seeded, marginate. (*Don's Mill.*) A deciduous low tree. Found in Carinthia, in the Alps of Jura, on Mount Cenis, and on the Apennines. According to some, it is also found wild in Scotland; but, though it is much cultivated in some parts of Fifeshire and Forfarshire, it is far from being indigenous there. Height 20 ft. to 30 ft., sometimes much higher in a state of cultivation. It was introduced into Britain about the same time as the other species, viz. 1596; and was, probably, for a long time confounded with it; for which reason we shall treat of the two species, or races, together. Flowers yellow; May and June. Legume brown; ripe in October.

*Varieties.*

♈ C. (L.) *a.* 2 *péndulus* has pendulous branches, and, in the foliage and legumes, seems intermediate between *C. Labúrnum* and *C.* (*L.*) alpìnus. This is very obvious in a fine specimen of this variety in the arboretum of the Messrs. Loddiges, as shown in the plate in *Arb Brit.*, 1st edit., vol. v. The pendulous variety of *C. Labúrnum* is a much less robust plant.

♈ C. (L.) *a.* 3 *purpuráscens* Hort., *C. L.* purpùreum *Hort.*, C. Adàmi Poir., *C. L.* coccíneum *Baum. Cat.*, the purple Laburnum, the scarlet Laburnum, is not a hybrid between *C. Labúrnum* and *C.* purpùreus, as was at first supposed, but a sport from a bud of *Cytisus* purpùreus inserted in *C.* alpìnus, in 1825, by D. Adam, a nurseryman at Vitry, near Paris. The flowers are of a reddish purple, slightly tinged with buff, and are produced in pendent spikes, 8 in. or more long. A few years after this sport was originated, it was found that it had a strong tendency to return to the original kinds; and that from one bud or graft, branches were produced of the true *Cytisus* purpùreus, of the true *Labúrnum* (either the Alpine or the common,

according to which of these may have been chosen as the stock) with yellow flowers, and of the purple laburnum. This was soon observed both in France and England. (See *Gard. Mag.*, vol. xii. p. 225., vol. xv. p. 122.; and *Arb. Brit.*, 1st edit., p. 590.) It is a very vigorous, and somewhat erect and fastigiate, growing variety, having produced shoots from 6 ft. to 9 ft. long in one season; but, though it has been highly spoken of by some cultivators, in point of beauty, it cannot be recommended.

♆ C. (L.) *a.* 4 *fràgrans* Hort. — Blossoms fragrant. There are plants in the Hackney Arboretum.

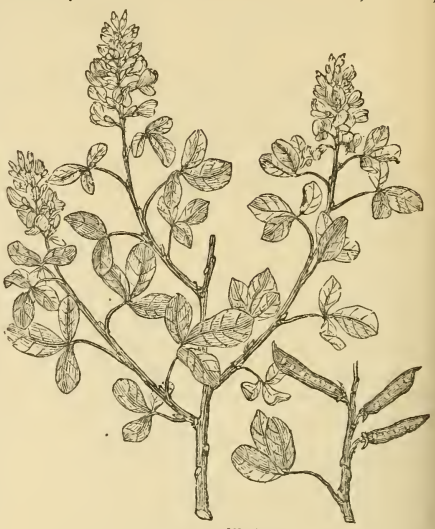
Miller recognised *C. L*abúrnum and *C.* alpìnus as species; but Linnæus did not. Whether they are species or varieties, they are certainly very distinct; as much so, perhaps, as the *Q*uércus *R*òbur pedunculàtum, and *Q. R.* sessiliflòrum, and like these two oaks they come true from seed. Both sorts, being highly ornamental, have been extensively propagated and cultivated in British gardens and plantations. There are trees at Syon of *C.* alpìnus above 40 ft. high, and some at Alnwick Castle with trunks 3 ft. in diameter. The heart-wood of the laburnum is of a dark colour; and, though of rather a coarse grain, it is very hard and durable: it will take a polish, and may be made to resemble ebony. A cubic foot weighs 52 lb. 11 oz. in a dried state. The colour and grain of the heart-wood vary much, according to the soil, and the age of the tree. It is darkest in the *C. L*abúrnum, when grown on poor calcareous soil; and lightest in the *C.* (*L.*) alpìnus, when grown in deep rich soil: in which last case its colour is a sort of greenish black. It is in much demand among turners and cabinet-makers. The ordinary use of the wood in the North of Scotland, is to form alternate staves with the wood of the holly, or the spindle tree, in making small noggins, or bickers; but it is also used for the bowls of punch-ladles; for flutes, and other musical instruments. Hares and rabbits being remarkably fond of the bark of the laburnum, it has been suggested to sow laburnum seeds, in order to produce an undergrowth in plantations liable to be infested with these animals; for, though the plants are eaten to the ground every winter, yet they will spring up again the next season, and thus yield a regular supply of winter's food for these kinds of game. As an ornamental tree, the laburnum has few rivals. The shape of the head is irregular and picturesque; its foliage is of a smooth, shining, and beautiful green; and, what is a great recommendation to every ornamental plant, it is not liable to be preyed on by insects. Though the laburnum will grow in a very indifferent soil, it requires a deep fertile sandy loam to attain a large size. In regard to situation, as the tree puts out few horizontal roots, and has rather a spreading head, when it grows rapidly it is apt to be blown aside by high winds; but, for the same reason, it is less injurious to plants growing near it, than some other ornamental trees. For producing timber, it should be placed in masses in a sheltered situation, or in a plantation among other trees, so as to be drawn up with a clear straight stem; and when so circumstanced, in good soil, *C.* (*L.*) alpìnus will grow to the height of from 35 ft. to 45 ft. Both *C. L*abúrnum and *C.* (*L.*) alpìnus are invariably raised from seed, and the pendulous and other varieties are propagated by grafting or budding on either of the common sorts. The seeds are fit to gather in October; and they may be kept in the pod, in a dry airy loft, till the March following, when they should be sown in beds of light soil, at about an inch apart every way, and covered about half an inch or three quarters of an inch thick. Half the plants which come up will be fit for transplanting into nursery lines in the November following.

### ♃ 4. *C.* WELDEN*II* Vis. Welden's Cytisus.

*Identification.* Visiani Pl. Dalm. Ex. Bot. Zeit., Jan. 1830., p. 52.; Don's Mill., 2. p. 155.; Hort. Fl. Austr., 2. p. 339.; Bot. Reg., 1839, Month. Reg., No. 122.
*Engraving.* Our *fig.* 343. from a drawing kindly sent us by the late Baron Jacquin.

*Spec. Char., &c.* Erect. Leaves ternate, petiolate; leaflets elliptic, entire, cu-

neated at the base, and obtuse at the apex, smooth. Racemes terminal, stalked, pyramidal, straight; pedicels hoary and villous. Calyxes campanulate, 3-lobed; lobes tomentosely ciliated. Corolla glabrous, but the carina is clothed with silky villi. Legume glabrous, mucronate by the style. (*Don's Mill.*) An erect woody shrub, resembling a laburnum. Dalmatia, in woods on mountains. Height 2 ft. to 3 ft.; 6 ft. to 8 ft. in gardens. Introduced in 1837. Flowers yellow, fragrant; June and July. Legumes brown; ripe in October.



343. *Cytisus Weldènii.*

The racemes are erect, and do not droop even when in fruit. The seeds are still more poisonous than those of the common laburnum, and the scent of the flowers causes headach. The milk of the goats which feed upon the flowers, Baron Welden observes, produces the same effect, only more severely, upon those who drink it.

### ♃ 5. *C.* NI'GRICANS *L.* The black Cytisus.

*Identification.* Lin. Sp., 1041.; Dec. Prod., 2. p. 153.; Don's Mill., 2. p. 155.
*Engravings.* Jacq. Austr., t. 378.; Bot. Reg., t. 802.; and our *fig.* 344.

*Spec. Char., &c.* Branches round, twiggy. Leaves stalked, and clothed with closely pressed down beneath, as well as the branches, calyxes, and pods; leaflets elliptic. Racemes elongated, terminal, erect. Calyxes without bracteas. (*Dec. Prod.*) A handsome deciduous shrub. Piedmont, Vallais, and Bohemia. On hills and along waysides. Height 3 ft. to 6 ft. Introduced in 1730. Flowers yellow; June and July. Legume black; ripe in October. The whole plant turns black when drying; whence the specific name.

344. *Cytisus nigricans.*

It ripens seed in abundance; and it may also be propagated by grafting on *C. Labúrnum*, thus forming a handsome standard.

### ♃ 6. *C.* SESSILIFO'LIUS *L.* The sessile-leaved Cytisus.

*Identification.* Lin. Sp., 1041.; Dec. Prod., 2 p. 153.; Don's Mill., 2. p. 155.
*Engravings.* Lam. Ill., t. 618. f. 2.: Bot. Mag., t. 255.; and our *figs.* 345. and 346.

*Spec. Char., &c.* The whole plant quite smooth. Branches round. Floral leaves almost sessile, and leaflets ovate. Racemes terminal, short, and erect; each calyx having a 3-leaved bractea under it. (*Dec. Prod.*) A shrub, with upright branches, and smooth shining leaves. Native of France and Piedmont. Height 4 ft. to 7 ft. Introduced in 1569. Flowers yellow; May and June. Legume black; ripe in October.

In very general cultivation in British gardens, generally as a bush, but some-

345. Cytisus sessilifolius.

times grafted standard high on the laburnum; when it forms a very formal, symmetrical, round-headed, small tree, which, however, is highly beautiful when in flower. We have given two figures of this species, both drawn to the same scale, to show how much it varies in the magnitude and general appearance of its foliage, according to soil and situation. Plants grafted standard high are common in the London nurseries.

346. Cytisus sessilifolius.

### 7. *C.* TRIFLO'RUS *L'Hérit.* The three-flowered Cytisus.

*Identification.* L'Hérit. Stirp., 184.; Desf. Fl. Atl., 2. p. 139.; Dec. Prod., 2. p. 154.; Don's Mill. 2. p. 155.; Webb Iter Hispan., 51.
*Synonyme.* *C.* villòsus *Pour. Act. Toul.* 3. p. 317.
*Engravings.* Clus. Hist., 1. p. 94. f. 3.; Duh., t. 5. f. 452.; our *fig.* 347.

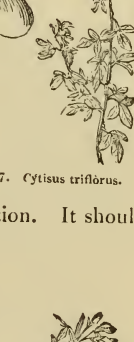
347. Cytisus triflòrus.

*Spec Char., &c.* The whole plant hairy. Branches round. Leaves petiolate; leaflets ovate-elliptic. Flowers axillary, pedicellate, terete, and somewhat racemose at the tops of the branches. (*Dec. Prod.*) A straggling hairy shrub, closely resembling *C.* capitàtus and *C.* hirsùtus. South of France, Italy, Sicily, and Mauritania. Height 3 ft. to 4 ft. Introduced in 1640. Flowers yellow; June and July. Legume black; ripe in October.

Frequent in gardens, sometimes grafted standard high; but neither as a standard nor as a dwarf is it of great duration. It should be planted in an airy situation.

### 8. *C.* PA'TENS *L.* The spreading Cytisus.

*Identification.* Lin. Syst. Vég. 555., according to L'Hérit. Stirp., 184.; Dec. Prod., 2. p. 154.; Don's Mill., 2. p. 155.
*Synonymes.* *C.* pendulinus *Lin. Fil. Supp.* 328.; *C.* grandiflòrus *Dec. Prod.* 2. p. 156.; Genísta tomentòsa *Poir. Supp.* 2. p. 719.; Spártium pàtens *Lin. Syst.* 535., *Brot. Fl. Lus.* 2. p. 83., but not of Cav.; Spártium grandiflòrum *Brot. Fl. Lus.*, 2. p. 80.; Sàrothámnus pàtens *Webb Iter Hispan.* 51.
*Engraving.* Our *fig.* 348.



348. Cytisus pàtens

*Spec. Char., &c.* Branches striated and pubescent. Leaves trifoliolate, petiolate; the upper ones simple, and obovate, as are the leaflets; covered with closely pressed down. Flowers axillary, usually in pairs, pedicellate, nodding. Pods very hairy. (*Dec. Prod.*) A spreading shrub. Native of Portugal. Height 4 ft. to 6 ft. Introduced in 1752. Flowers yellow; June and July. Legume dark brown, or black; ripe in October.

A very handsome shrub, especially when grafted standard high, not so common in collections as it ought to be.

### 9. *C.* SCOPA'RIUS *Link.* The *common* Broom.

*Identification.* Link Enum., 2. p. 241.; Dec. Prod., 2. p. 154.; Don's Mill., 2. p. 155.
*Synonymes.* Spártium scopàrium *Lin. Sp.* 998., *Smith Eng. Bot.* 1339.; Genísta scopària *Lam. Dict.* 2. p. 623., but not of Vill.; *G.* hirsùta *Mœnch Meth.* 144.; Genêt à Balais, Genêt commun, *Fr.*; gemeine Pfriemen, *Ger.*
*Engravings.* Œd. Fl. Dan., t. 313.; Smith Engl. Bot., t. 1339.; and our *fig.* 349.

*Spec. Char., &c.* Branches angled, glabrous. Leaves petioled, trifoliolate; the uppermost simple; these and the leaflets oblong. Flowers axillary, pediceled, solitary. Legumes pilose at the margins. (*Dec. Prod.*) A shrub, evergreen from the colour of its numerous young shoots. Native of dry sandy or gravelly soils, throughout Europe. Height 3 ft. to 12 ft. according

to the soil and situation. Flowers large, yellow ; May and June. Legume black ; ripe in September. Naked young wood green.

*Varieties.*

- C. s. 2 *álbus* Hort. has the flowers white, or of a very pale yellow.
- C. s. 3 *flòre plèno* Hort. has flowers slightly double.

The roots are straight, and penetrate perpendicularly to a great depth. The leaves are trifoliolate or simple ; the branches numerous, long, straight, angular, dark green, smooth, and tough. The flowers are of a deep golden yellow, sometimes tinged with orange, and occasionally of a uniform pale lemon colour : they are succeeded by pods above an inch long, black when ripe, and each containing 15 or 16 seeds. The flowers are larger than those of any other species of the genus ; and, were the plant not so common in a wild state, it would, doubtless, be considered the most ornamental. The whole plant is exceedingly tough, and bitter to the taste, and has a strong disagreeable smell. Though it is at present comparatively neglected, yet in former times it was one of very great importance in rural and domestic economy. The branches are eaten by sheep and cattle ; and, on poor gravelly soils, formed, before the general improvement of grass lands which has taken place within the last century, the principal herbage. One of the principal modern uses of the broom, both in Britain and on the Continent, is to form brooms, or besoms; for which purpose, as the specific name would imply, it appears to have been used from time immemorial. The young shoots were formerly used as a substitute for hops in brewing beer; and the flower-buds, just before they become yellow, were pickled in the manner of capers. The tops and leaves are purgative and diuretic. In the North of Scotland, a decoction of the recent shoots is used by shepherds, for dressing the backs of sheep, instead of tobacco water. The broom produces abundance of seeds, which, according to M. Hartig, retain their germinating quality for a very long time : some that he kept 25 years, in a room which was occupied, having come up as readily as new seed.

349. *Cytisus scopàrius.*

## § iii. *Calycótome* Link.

*Derivation.* From *kalyx*, a calyx, and *tomē*, a cutting ; in reference to the calyx, the upper part of which, after some time, falls off, in such a manner as to give the remainder the appearance of being cut round.

*Sect. Char.* Calyx campanulate, somewhat bilabiate, at length becoming truncate. Pod thickened on the upper suture. Shrubs with spiny branches and yellow flowers. (*Dec. Prod.*)

### 10. *C.* SPINO'SUS *Lam.* The spiny Cytisus.

*Identification.* Lam. Dict., 2. p. 247. ; Dec. Prod., 2. p. 154. ; Don's Mill., 2. p. 155. ; Webb Itcr Hispan., 51.
*Synonyme.* Spártium spinòsum *Lin. Sp.* 997.
*Engravings.* J. Bauh. Hist., 1. p. 2. p. 376., icon. ; Lob. Icon., 2. t. 95. ; and our *fig.* 350.

*Spec. Char., &c.* Branches angled, spiny. Leaves trifoliolate ; leaflets obovate-oblong. Legumes perfectly smooth. (*Dec. Prod.*). An upright spiny shrub. Upon hills and rough places from Perpignan to Genoa, in Corsica, and in the Algerine country. Height 2 ft. to 10 ft. Introduced in 1596. Flowers yellow ; June and July. Legume black ; ripe in October.

There are plants in the Hort. Soc. Garden.

350. *C. spinosus.*

11. *C.* TRIBRACTEOLA'TUS *Webb.* The three-bracted Cytisus.

*Identification.* Iter Hispan., p. 51.; Otia Hispan., p. 3.
*Engravings.* Otia Hispan., t. 3. and our *fig.* 351.

*Spec. Char., &c.* Decumbent. Branches tetragonal, divaricate, rigid, obtuse. Leaves trifoliolate, verticillately sub-opposite; leaflets ovate-elliptic, slightly obtuse at the apex, retuse, with ash-coloured silky down, petiolulate. Common petiole none, or cohering with the branch. Flowers axillary, clustered, pedunculate. Calyx bilabiate, hairy; upper lip cut to the middle in narrow acute segments; lower lip longer, narrow, 3-toothed; middle tooth longest, supported at the base by three ovate closely pressed bracts. (*Webb, Otia Hisp.*) A decumbent shrub, evergreen from the colour of its bark. Spain near Medina Sidonia, on the summits of mountains. Height 1 ft. to 3 ft. Introduced in 1838. Flowers yellow; May. Legume ?.

351. Cytisus tribracteolatus.

12. *C.* LANI'GERUS *Dec.* The wool-bearing Cytisus.

*Identification.* Dec. Prod., 2. p. 154.; Don's Mill., 2. p. 155.; Webb Iter Hispan., 51.
*Synonymes.* Spártium lanígerum *Desf. Fl. Atl.* 2. p. 135.: Calycótome villòsa *Link Enum.*; Spártium villòsum *Brot. Fl. Lus.* 2. p. 85., and *Poir. Voy.* 2. p. 207.
*Engraving.* Our *fig.* 352. from a specimen in the British Museum.

*Spec. Char., &c.* Branches furrowed, spiny. Leaves trifoliolate; leaflets obovate-elliptical. Legumes very hairy in a woolly manner. (*Dec. Prod.*) A spiny shrub. Found wild on hills and in rough places in Corsica, Crete, the Archipelago, Mauritania, Gibraltar, and Portugal. Height 2 ft. to 10 ft. Introduced in 1821. Flowers yellow; June and July. Legume dark brown, or black; ripe in October.

*Variety.*

C. *l.* 2 *rígidus* Dec. — Spines very strong.

Not common in collections, and in all probability it is nothing more than a variety of the preceding species.

352. *C.* lanigerus

## § iv. *Tubocýtisus* Dec.

*Derivation.* From *tubus*, a tube, and *cytisus*; in reference to the tubular shape of the calyx.

*Sect. Char.* Calyx tubular, with the apex toothed-lipped. Thornless shrubs. (*Dec. Prod.*, ii. p. 155.)

### A. *Flowers white or whitish.*

13. *C.* LEUCA'NTHUS *Waldst. et Kit.* The white-flowered Cytisus.

*Identification.* Waldst. et Kit., 2. p. 141.; Dec. Prod., 2. p. 155.; Don's Mill., 2. p. 156.
*Engravings.* Bot. Mag., t. 1438.; and our *fig.* 353.

*Spec. Char., &c.* Stem erect. Branches round, and, as well as the leaves, clothed with closely pressed pubescence. Leaflets elliptic and acute. Flowers at the points of the branches; heads of flowers bracteated by two leaves. (*Dec. Prod.*) A downy shrub. Croatia, in woods. Height 3 ft. to 4 ft. Introduced in 1806. Flowers yellowish white; June and July. Legume black; ripe in October.

3. 3. *C.* leucánthus.

Very ornamental, and well deserving a place among other species of the genus. It forms a handsome object grafted standard high.

B. *Flowers purple.*

⁂ 14. *C.* PURPU'REUS *Scop.* The purple-*flowered* Cytisus.

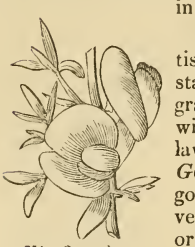
*Identification.* Scop. Carn., No. 905. t. 43.; Dec. Prod., 2. p. 155.; Don's Mill., 2. p. 156.
*Engravings.* Jacq. Aust. Append., t. 48.; Lodd. Bot. Cab., t. 892.; Bot. Mag., t. 1176.; and our *figs.* 354, 355.

*Spec. Char., &c.* Stems procumbent, twiggy. Leaves, calyxes, and legumes glabrous. Leaflets oblong. Flowers axillary, solitary, on short pedicels. (*Don's Mill.*) A procumbent shrub. Native of Carniola in exposed places. Height 1 ft. Introduced in 1792. Flowers purple; May to August. Legume black; ripe in October.

*Varieties.*

⁂ C. *p.* 2 *flòre álbo* Hort. has the flowers of a pure white.

⁂ C. *p.* 3 *flore ròsco.*—Flowers rose-coloured. Plants in the Horticultural Society's Garden.


354. *C.* purpùreus

355. *C.* purpùreus.

Of all the different species of *Cýtisus*, when grafted on the laburnum standard high, this forms the most graceful tree; and a plant of it covered with its purple flowers, placed on a lawn, or in a border near a standard of *Genísta* tríquetra, covered with its golden yellow flowers, will produce a very striking effect. The singular hybrid or sport formed between this plant and the laburnum has been already described, p. 216.

C. *Flowers yellow.*

⁂ 15. *C.* ELONGA'TUS *Waldst. et Kit.* The elongated Cytisus.

*Identification.* Waldst. et Kit. Hung., 2. p. 200. t. 183.; Dec. Prod., 2. p. 155.; Don's Mill., 2. p. 155.
*Engravings.* Waldst. et Kit. Hung., t. 183.; and our *fig.* 356.

*Spec. Char., &c.* Stems erect. Branches elongated and round; young ones hairy. Leaflets obovate, clothed beneath with closely pressed hairs. Flowers lateral, usually in fours, on short pedicels. Calyxes hairy. (*Dec. Prod.*) An erect pubescent shrub. Native of Hungary, in woods. Height 3 ft. to 4 ft. Introduced in 1804. Flowers yellow; May and June. Legume dark brown, or black; ripe in September.

In H. S. Garden, and at Messrs. Loddiges's.

⁂ 16. *C.* MULTIFLO'RUS *Lindl.* The many-flowered Cytisus.

*Identification.* Lindl. Bot. Reg., t. 1191.; Don's Mill., 2. p. 156.
*Synonymes.* *C.* elongàtus *Hortul.*, but not of Kit.; *C.* elongàtus β multiflórus *Dec. Prod.* 2. p. 155.
*Engravings.* Lindl. Bot. Reg., t. 1191.; and our *fig.* 357.

*Spec. Char., &c.* Stems erect. Branches elongated, terete, younger ones villous. Leaflets oblong, tapering to the base, villous beneath, and of the same colour on both surfaces. Flowers usually ternary. Pedicels about equal in length to the petiole

356. *Cytisus elongàtus.*

Vexillum emarginate, undulated. (*Don's Mill.*) A downy shrub. Native of Europe. Height 2 ft. to 3 ft. Introduced in 1800. Flowers yellow; May and June. Legume black; ripe in September.

It appears to us to be only a variety of the preceding species.

357. *Cytisus multiflorus.* 358. *Cytisus falcàtus.* 359. *Cytisus austriacus.*

17. *C.* FALCA'TUS *Waldst. et Kit.* The sickle-*like-podded* Cytisus.

*Identification.* Waldst et Kit. Hung., 3. p. 264; Dec. Prod., 2. p. 155.; Don's Mill., 2. p. 156.; Lod.
*Engravings.* Lodd. Bot. Cab., t. 520.; Waldst. et Kit. Hung., 3. t. 238.; and our *fig.* 358.

*Spec. Char., &c.* Stems declinate. Branches round and twiggy; the young ones, as well as the leaves, clothed with closely pressed hairy down. Petioles hairy. Flowers usually in threes, lateral, and on short peduncles. Calyxes clothed with closely pressed hairs. (*Dec. Prod.*) A downy shrub. Native of Croatia, the South of Russia, and Gallicia. Height 2 ft. to 4 ft. Introd. 1816. Flowers yellow; June to August. Legume black; ripe in October.

*Varieties.* C. triflòrus *Lod.*, C. ruthénicus *Lod.*, C. decúmbens *Lod.*, are apparently all varieties of this species.

18. *C.* AUSTRI'ACUS *L.* The Austrian Cytisus.

*Identification.* Lin. Sp., 1042.; Dec. Prod., 2. p. 156.; Don's Mill., 2. p. 156.
*Engravings.* Mill. Icon., 117. f. 2.; Pall. Itin., ed. Gal., t. 100. f. 3.; Jacq. Austr., t. 21.; and our *fig.* 359. above.

*Spec. Char., &c.* Stems upright. Branches round and twiggy, and, as well as the leaves, clothed with closely pressed strigose pubescence. Leaflets lanceolate, attenuated at both ends. Flowers terminal, somewhat umbellate. Calyxes and legumes rather hairy. (*Dec. Prod.*) An upright downy shrub. Found in woods and rough places in Austria, Upper Italy, the Ukraine, and Siberia. Height 2 ft. to 4 ft. Introduced in 1741. Flowers yellow; July to September. Legume black; ripe in November.

*Variety.*

C. *a.* 2 *nòva* Lod. has the leaves much smaller than the species, and seems to be an erect, and very distinct variety.

360. *Cytisus supinus*

19. *C.* SUPI'NUS *Jacq.* The supine Cytisus.

*Identification.* Jacq. Fl. Austr., 1. t. 20.; Dec. Prod., 2. p. 156.; Don's Mill., 2. p. 156.
*Synonyme.* *C. lotoïdes Pour. Act. Toul.* 3. t. 318.
*Engravings.* Clus. Hist., p. 96., No. 7., icon.; Jacq. Fl. Austr., 1. t. 20.; and our *fig.* 360.

*Spec. Char., &c.* Stems branched and decumbent. Branches round, and, when young, rather hairy; adult ones smooth. Leaflets obovate, hairy beneath. Flowers 2—4, usually terminal and pedunculate. Calyxes and pods slightly hairy.

(*Dec. Prod.*) A decumbent hairy shrub. Native of Belgium, Austria, Pannonia, Siberia, Turkey, and Dauphiné, both on exposed hills, and in sheltered bushy places. Height 1 ft. Introduced in 1755. Flowers pale yellow, with the standard reddish; May to August. Legume dark brown, or black; ripe in November.

### 20. *C.* HIRSU'TUS *L.* The hairy Cytisus.

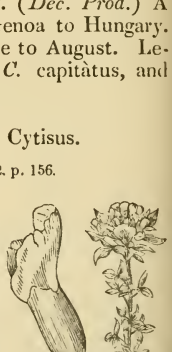
*Identification.* Lin. Sp., 1042.; Dec. Prod., 2. p. 156.; Don's Mill., 2. p. 156.
*Synonymes.* *C.* supìnus *Bertol. Pl. Gen.*, but not of Lin.; *C.* triflòrus *Lam. Dict.* 2. p. 250., but not of L'Hérit.; *C.* Tournefortidnus Loisel. in N. Du Ham., 5. p. 157.
*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* Stems decumbent. Branches round and twiggy; when young hairy, but smooth when old. Leaflets ovate, hairy beneath. Flowers lateral on very short pedicels, aggregate. Calyxes and pods hairy. (*Dec. Prod.*) A decumbent hoary shrub. Found in rugged places from Genoa to Hungary. Height 1 ft. Introduced in 1739. Flowers yellow; June to August. Legume black; ripe in October. Closely resembling the *C.* capitàtus, and *C.* triflòrus of Loddiges's arboretum.

### 21. *C.* CAPITA'TUS *Jacq.* The headed-*flowered* Cytisus.

*Identification.* Jacq. Fl. Austr., t. 33.; Dec. Prod. 2. p. 156.; Don's Mill., 2. p. 156.
*Synonymes.* *C.* hirsùtus *Lam. Dict.* 2. p. 250.; *C.* supinus *Lin. Sp.* 1040.
*Engravings.* Lodd. Bot. Cab., t. 497.; and our *fig.* 361.

*Spec. Char., &c.* Stems and branches erect, the latter hispid. Leaflets ovate-elliptic, hairy. Flowers numerous, and forming heads at the points of the branches; but sometimes lateral in the autumn. Calyxes and pods covered with short hairs. (*Dec. Prod.*) An upright hoary shrub. Found wild on the edges of woods in Burgundy, Italy, and Austria. Height 2 ft. to 4 ft. Introduced in 1774. Flowers yellow; June and July. Legume dark brown, or black; ripe in October.


361. *C.* capitàtus.

*Varieties or Synonymes.* Cýtisus austrìacus *Lod.*, *C.* canéscens *Fisch. of Göt.*, *C.* uralénsis *Lod.*, *C.* calycìnus *Lod.*, *C.* parvifòlius *Lod.*, *C.* hirsùtus *Lod.*, *C.* supìnus *Lod.*, appear to be all varieties of *C.* capitàtus, or in some cases, perhaps, identical with that species.

### 22. *C.* CILIA'TUS *Wahlenb.* The ciliated-*podded* Cytisus.

*Identification.* Wahlenb. Fl. Carp., 219.; Dec. Prod., 2. p. 156.; Don's Mill., 2. p. 156.
*Engraving.* Our *fig.* . in *fig.* .

*Spec. Char., &c.* Stems upright. Branches smooth when old, but when young hispid. Leaflets obovate, clothed beneath with closely pressed hairs. Flowers approximate in threes, at length lateral. Pods glabrous and ciliated. (*Dec. Prod.*) A hispid shrub. Native of the Carpathian Mountains. Height 2 ft. to 4 ft. Introduced in 1817. Flowers yellow; June and July. Legume black; ripe in October.

### 23. *C.* POLY'TRICHUS *Bieb.* The many-haired Cytisus.

*Identification.* Bieb. Fl. Taur. Suppl., 477.; Dec. Prod., 2. p. 156.; Don's Mill., 2. p. 156.
*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* Stems declinate. Branches hispid. Leaflets obovate-elliptic. Flowers lateral, usually in pairs, pedicellate. Calyxes and pods hairy. (*Dec. Prod.*) A recumbent shrub. Found in pine forests, on high mountains, in Tauria. Height 2 ft. to 4 ft. Introduced in 1818. Flowers yellow; June and July. Legume black; ripe in October. DeCandolle observes of it, that it has the hairiness of *C.* capitàtus, the disposition of the flowers of *C.* hirsùtus, and the habit of *C.* supìnus.

## § v. *Lotoïdes* Dec.

*Derivation.* From *lotos*, the lotus, and *eidos*, appearance; from the general resemblance of the species to the genus *Lòtus*.

*Spec. Char., &c.* Tube of the calyx short, obconical; the upper lip 2-parted, the lower 3-toothed. Corolla hardly longer than the calyx. Many-stemmed decumbent shrubs, deciduous, with few flowers, generally capitate and terminal, and all yellow. (*Dec. Prod.*)

### ✱ 24. *C.* ARGE'NTEUS *L.* The silvery Cytisus.

*Identification.* Lin. Sp., 1043.; Dec. Prod., 2. p. 156.; Don's Mill., 2. p. 157
*Synonyme.* *Lòtus* argénteus *Brot. Fl. Lus.* 2. p. 119.
*Engravings.* Lob. Icon., 2. p. 41. f. 2.; and our *fig.* 362.

362. *C.* argénteus.

*Spec. Char., &c.* Stems decumbent. Leaves, calyxes, corollas, and pods clothed with a closely pressed silky down. Leaves petiolate, trifoliolate; leaflets oblong-lanceolate. Flowers 3—4, produced at the points of the shoots. (*Dec. Prod.*) A decumbent shrub. Native of Carniola, the South of France, and Mauritania. Height 1 ft. Introduced in 1739. Flowers yellow; August. Legume black; ripe in October.

A silky silvery-looking shrub, from the prevalence of closely pressed silky down over all its parts; noticed in the specific character, and whence it derives its specific name.

### ✱ 25. *C.* CALYCI'NUS *Bieb.* The *large*-calyxed Cytisus.

*Identification.* Bieb. Fl. Taur., 2. p. 166.; Dec. Prod., 2. p. 157.; Don's Mill., 2. p. 157.
*Synonyme.* *C.* pauciflòrus *Willd. Sp.* 3. p. 1126.
*Engravings.* Lodd. Bot. Cab., t. 673.; and our *fig.* 363.

363. *C.* calycinus.

*Spec. Char., &c.* Stems ascending. Leaves, calyxes, and pods somewhat hairy from spreading down. Leaves trifoliolate and petiolate. Leaflets roundish, obovate. Flowers terminal, from 2 to 8 together. (*Dec. Prod.*) A prostrate shrub, with trailing branches, the ends of which grow upright. Found in stony places on Mount Caucasus. Height 1 ft. Introduced in 1820. Flowers yellow; August. Legume black; ripe in October.

### ✱ 26. *C.* NA'NUS *Willd.* The dwarf Cytisus.

*Identification.* Willd. Enum., 769.; Don's Mill., 2. p. 157.
*Engravings.* Wats. Dend. Brit., t. 81.; and our *fig.* 364.

364. *Cytisus nànus.*

*Spec. Char., &c.* Stems cylindrical. Leaves trifoliolate, obovate, clothed with strigose pubescence beneath, and smooth above. Raceme terminal, secund, usually 4-flowered. Calyx deeply 3-parted; hairs on the stems and peduncles adpressed. (*Don's Mill.*) A procumbent shrub. Native of the Levant. Height 1 ft. Introd. in 1816. Flowers yellow; June and July. Legume black; ripe in October.

This is a beautiful little shrub for rockwork; and if planted in dry sandy soil, covered with broad flat stones to retain the moisture during the hot weather of July, it will continue flowering during the whole of that month, and produce abundance of seeds; which may be sent to any distance in the pods.

## § vi. *Chronánthus* Dec.

*Derivation.* From *chronos*, a year, and *anthos*, a flower; applied to this section because the petals remain attached to the calyxes all the year.

*Sect. Char.* Calyx with the upper lip bifid, and the lower one trifid; lobes acute, of the same length as the tube. Petals permanent. Legume oval, much compressed, 2-seeded. (*Dec. Prod.*, ii. p. 157.)

### 27. *C.* ORIENTA'LIS *Lois.* The Oriental Cytisus.

*Identification.* Lois. in N. Du Ham., 5. p. 156.; Don's Mill., 2. p. 157.
*Synonyme.* *C.* orientàlis, &c, *Gerard* and *Vail. Herb.*
*Engravings.* Pluk. Phyt., t. 31. f. 3.; and our *fig.* 365.

365. *C.* orientalis.

*Spec. Char., &c.* Stems erect, hairy. Leaves almost sessile, trifoliolate, hairy; leaflets linear, acute. Flowers large and yellow, subterminal, on short pedicels, and few. The flowers and pods are both glabrous. Calyx hairy, more 5-cleft than bilabiate. (*Dec. Prod.*, ii. p. 157.) An erect hairy shrub. Native of the Levant. Height 2 ft. to 3 ft. Introduced in 1818. Flowers yellow, large and persistent; June and July. Legume black; ripe in October.

*Other Species of Cýtisus.*—This genus, in British gardens, is in such a state of confusion, that nothing can be done in it satisfactorily till all the kinds are collected together, and cultivated for two or three years till they show their flowers and fruit. Perhaps two thirds of the alleged species in the London gardens are only varieties. In the mean time, all that a cultivator can do is to procure as many kinds as he can; and in the collection of Messrs. Loddiges he will find the greater number of those above described, though some of them have been killed by the winter of 1837–8. Among the species probably hardy, by far the handsomest in point of foliage is the C. *æólicus* Guss. (Bot. Reg. t. 1902., and our *fig.* 366.) It is a tall, very hoary shrub. A native of Stromboli. Height 5 ft. to 8 ft. Introd. in 1835. Flowers pubescent, yellow, campanulate, and the young legumes glabrous. It has the appearance, Dr. Lindley observes, of being an intermediate species between *C. Laburnum* and *C.* triflòrus. (See *Arb. Br.*, 1st ed., p. 2551.) C. *racemòsus* Marnock (Flor. Mag., vol. ii. t. 18.; and our *fig.* 367.) is a handsome shrub, of moderately robust habit; a native of the Peak of Teneriffe. Height 3 ft. to 4 ft. Introduced in 1835. The flowers are terminal, in a spike about 6 in. in length, and of a bright yellow. There were plants in the Epsom Nursery in 1838. Many other species of *Cýtisus* are described by authors, for which we refer to Don's *Miller*, Webb's *Iter Hispaniense*, Boissier's *Elenchus Plantarum*, Duby and DeCandolle's *Botanicon Gallicum*, and the first edition of this *Arboretum*. Many genera of ligneous plants require to be cultivated together, in the same garden, in order to settle their nomenclature: but while some of these, as *Quércus*, *Pinus*, &c., would consume the greater part of a lifetime in procuring them from the different quarters of the world, and waiting till they came into flower, the genera *Genísta*, *Cýtisus*, and *Adenocárpus* are almost exclusively European, and might be collected in the course of one year; while, in three years after the seeds were sown, the plants would in most cases come into flower. It is surprising, therefore, that some amateur of leisure does not undertake their arrangement.

366. *Cýtisus æólicus.*

367. *Cýtisus racemòsus.*

## Genus VIII.

### ADENOCA'RPUS *Dec.* The Adenocarpus. *Lin. Syst.* Monadélphia Decándria.

*Identification.* Dec. Fl. Fr. Supp., 549.; Lég. Mém., 6.; Prod., 2. p. 158.; Don's Mill., 2. p. 157.
*Derivation.* From *adēn*, a gland, and *karpos*, fruit; in reference to the legumes being beset with pedicellate glands.

*Gen. Char.* *Calyx* obconical, usually beset with glands, bilabiate; upper lip bipartite, lower one longer and trifid. *Carina* obtuse, enclosing the stamens and pistils. *Stamens* monadelphous. *Legume* oblong, compressed. (*Don's Mill.*) *Leaves* compound, trifoliolate, alternate, stipulate, deciduous. *Flowers* yellow in all the species. — Shrubs, straggling, of short duration, somewhat evergreen from the colour of their young shoots; natives chiefly of Europe.

Branches divergent; leaves trifoliolate, with petiolar stipules, and folded leaflets, and usually grouped; flowers upon bracteolate pedicels, and disposed in terminal racemes. Culture as in *Cýtisus*, from which genus most of the species have been separated.

368. A. hispánicus.

1. A. hispa'nicus *Dec.* The Spanish Adenocarpus.

*Identification.* Dec. Fl. Fr. Suppl., 549.; Lég. Mém., 6.; Prod., 2. p. 158.; Don's Mill., 2. p. 158.
*Synonymes.* *Cýtisus hispánicus* *Lam. Dict.* 2. p. 248.; *C. anagýrius* *L'Hérit. Stirp.* 184.. *N. Du Ham.* 5. p. 149.
*Engraving.* Our *fig.* 368.

*Spec. Char., &c.* Calyx glandulose and villose; lower lip with three equal segments, that are barely longer than the upper lip. Branchlets hairy. Flowers grouped. Standard rather glabrous. (*Dec. Prod.*) A hairy shrub. Spain and Portugal, in shady and moist places. Height 2 ft. to 4 ft. Introduced in 1816. Flowers yellow; June and July. Legume dark brown, or black; ripe in October.

2. A. Boissie'ri Webb. Boissier's Adenocarpus.

*Identification.* Webb's Iter Hisp., p. 52.; Otia Hispan., p. 4.
*Synonymes.* A. decórticans *Boiss. Not. sur l'Abies Pinsapo*, p. 9.; Raca vieja, *Span.*
*Engravings.* Otia Hispanica, t. 4.; and our *fig.* 369.

*Spec. Char., &c.* Arborescent. Bark scaly. Branches purplish, ash-coloured, clothed with soft hairy pubescence, and with numerous leaves. Petioles elongate, terete. Leaves with adpressed pubescence. Leaflets linear, with revolute margins, somewhat obtuse. Calyx villous, the lower lip somewhat longer than the upper. Vexillum pubescent at the apex and middle. Legumes elongate, obtuse, whitish, with purple glands. Seed greenish black. (*Webb, Otia Hispan.*) A large deciduous shrub. Spain, in warm valleys of the mountains of Granada, 4500 ft. to 5000 ft. above the sea. Height 15 ft. to 20 ft. Introduced ?. Flowers reddish yellow, fragrant; June and July. Legume whitish, covered with numerous purple glands; ripe in August.

369. Adenocárpus Boissiéri.

A most beautiful species when in flower; but, when out of flower, of a gloomy ashy hue. The trunk is disfigured by the old ragged bark, whence the vernacular name. It is truly astonishing, Mr. Webb observes, that this splendid European plant, of almost arboreous stature, with spikes of flowers sometimes a foot in length, should so long have escaped detection. It closely resembles *A.* hispánicus, but, according to Mr. Webb, it is "very entirely distinct." Plants are, or soon will be, in the Milford Nursery.

### ♃ 3. A. INTERME'DIUS *Dec.* The intermediate Adenocarpus.

*Identification.* Dec. Prod., 2. p. 158.; Don's Mill., 2. p. 158.
*Synonyme.* *Cýtisus* complicàtus *Brot. Fl. Lus.* 2. p 92.
*Engravings.* Clus. Hist., 1. p. 94. f. 1.; and our *fig.* 370.

370. A intermedius.

*Spec. Char., &c.* Calyx pubescent; pubescence glandulated; the middle of the three segments of the lower lip of the calyx longer than the side ones, and than the upper lip. Branchlets rather villose. Flowers rather distant. Standard rather glabrous. (*Dec. Prod.*) A pubescent shrub. Native of sunny gravelly places in Portugal and Old Castile, and Mount Scuder, in Sicily, and of Mongiana, in the kingdom of Naples. Height 4 ft. Year of introduction unknown. Flowers yellow; May to July. Legume black; ripe in September.

A very handsome species, and one that is much admired for its fine terminal spikes of flowers, which, in favourable seasons, and in a dry soil, ripen abundance of seeds.

### ♃ 4. A. PARVIFO'LIUS *Dec.* The small-leaved Adenocarpus.

*Identification.* Dec. Lég. Mém. 6., and Prod. 2. p. 158.; Don's Mill., 2. p. 158.
*Synonymes.* *Cýtisus* parvifòlius *N. Du Ham.* 5. p. 147., *Lam. Dict.* 2. p 248., exclusive of the synonymes; *Cýtisus* divaricàtus *L'Hérit. Stirp.* 184.; *Cýtisus* complicàtus *Dec. Fl. Fr.* No. 3821.; *Spártium* complicàtum *Lois. Fl. Gall.* 441
*Engravings.* N. Du Ham., 5. t. 47. f. 1.; and our *fig.* 371.

371. A.parvifolius.

*Spec. Char., &c.* Calyx somewhat pubescent, with glandulous pubescence; the central segment of the lower lip longer than the side segments, and much exceeding the upper lip in length. Branches glabrous. Flowers distant. Standard pubescent. (*Dec. Prod.*) An erect shrub, whitish from the down on its branches. Native of sunny heaths in the West of France. Height 2 ft. to 10 ft. Introduced in 1800. Flowers yellow; May to July. Legume black; ripe in October.

### ♃ 5. A. TELONE'NSIS *Dec.* The Toulon Adenocarpus.

*Identification.* Dec. Fl. Fr. Suppl. 54., Lég. Mém. 6., Prod. 2. p. 158.; Don's Mill., 2. p. 158.
*Synonymes.* *Cýtisus* telonénsis *Lois. Fl. Gall.* 446., and in *N. Du Ham.* 5. p. 155.; *Spártium* complicàtum *Gouan Hort. Monsp.* 356., exclusive of the synonyme.
*Engravings.* N. Du Ham., 5. t. 47. f. 2.; and our *fig.* 372.

372. A. telonénsis.

*Spec. Char., &c.* Calyx not glandulose, pubescent; the segments on the lower lip nearly equal, exceeding a little the upper lip in length. Branches almost glabrous. Flowers distant. Standard pubescent. (*Dec. Prod.*) An erect shrub. Native of sterile places and heaths in the Pyrenees, in Cevennes, in Provence, and in Rome. Height 2 ft. to 4 ft. Introduced in 1800. Flowers yellow; June and July. Legume dark brown, or black; ripe in October.

It well deserves a place in British gardens; where, when judiciously treated, it will, owing to the moisture of our climate, attain double the height that it does in the South of France.

## Genus IX.

### ONO'NIS *L.* The Restharrow. *Lin. Syst.* Monadélphia Decándria.

*Identification.* Lin. Gen., No. 863.; Lam. Ill., t. 616.; Dec. Prod., 2. p. 158.; Don's Mill., 2. p. 158.
*Synonymes.* *A*nònis and *N*àtrix *Mœnch Méth.* 157. and 158.; Arrête-bœuf, or sometimes Bugrane, *Fr.*; Hauhechel, *Ger.*
*Derivation.* Said to be from *onos*, an ass; because only asses would feed upon so prickly a plant. Restharrow is a corruption of *arrest*, that is, stop, *harrow*; from the long and deeply seated roots opposing a serious impediment to the plough or harrow.

*Gen. Char.* *Calyx* campanulate, 5-cleft, with linear segments. *Vexillum* large, striated. *Stamens* monadelphous, the tenth one sometimes almost free. *Legume* usually turgid, sessile, few-seeded. (*Don's Mill.*)

*Leaves* trifoliolate, stipulate, alternate, deciduous. *Flowers* yellow, purplish and red, or rarely white. — Shrubs, very low, suffruticose; natives of Europe. Two species are hardy.

The peduncle is, in many instances, furnished with an awn, which is the petiole of an abortive floral leaf. The two specimens here described are well adapted for rockwork or flower-borders, on account of their lively flowers, which are red, or reddish purple; colours not frequently met with in the ligneous Leguminàceæ, by far the greater part of which have yellow flowers. They are readily propagated by seeds or by division, and will grow in any soil that is tolerably dry.

1. *O.* FRUTICO'SA *L.* The shrubby Restharrow.

*Identification.* Lin. Sp., 1010.; Dec. Prod., 2. p. 167.; Don's Mill., 2 p. 160.
*Engravings.* N. Du Ham., 1. t. 58.; Mill. Icon., t. 36.; Bot. Mag., t. 317; and our *fig.* 373.

*Spec. Char., &c.* Leaves trifoliolate. Leaflets sessile, lanceolate, serrated. Stipules connate into one, sheathing, and 4-awned; and, in the uppermost parts of the plant, occupying the places of leaves which are absent. Pedicels 3-flowered, disposed in a raceme. (*Dec. Prod.*) A low shrub. Alps of Dauphiné, &c. Height 1 ft. to 4 ft. Introduced in 1680. Flowers purplish red; May and June. Legume brown; ripe in September.

*Variety.*

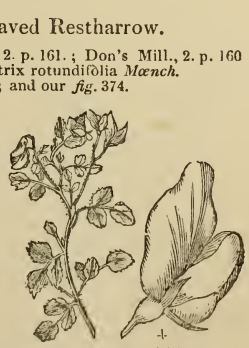
O. *f.* 2 *microphýlla* Dec., *O.* fruticòsa *Asso.* — Leaflets small, obovate, and serrated. Native of the mountains of Aragon.

373. *O.* fruticòsa

2. *O.* ROTUNDIFO'LIA *L.* The round-leaved Restharrow.

*Identification.* Lin. Sp. ed. 1. p. 719., but not ed. 2.; Dec. Prod., 2. p. 161.; Don's Mill., 2. p. 160
*Synonymes.* *O.* latifòlia *Asso Syn.* 97., *Lin. Mant.* t. 11. f. 1.; *N*àtrix rotundifòlia *Mœnch.*
*Engravings.* Jacq. Fl. Austr. Append., t. 49.; Bot. Mag., t. 335.; and our *fig.* 374.

*Spec. Char., &c.* Leaves trifoliolate; leaflets ovate, and toothed. Peduncles 3-flowered, and without bracteas. (*Dec. Prod.*) A low shrub. Native of the Pyrenees, and the Alps. Height 1 ft. to 2 ft. Introduced in 1570. Flowers purplish red; May to Sept. Legume brown; ripe in October.



374. *O.* rotundifòlia.

*Other Kinds of* Onònis. — O. *tribracteàta* Dec., a suffruticose plant with pink flowers, supposed to be a native of Carinthia, differs little from *O.* rotundifòlia. Several other species are hardy, but not sufficiently ligneous for our purpose.

## Genus X.

AMO'RPHA *L.* The Amorpha, *or* *Bastard Indigo.* *Lin. Syst.* Monadélphia Decándria.

*Identification.* Lin. Gen., 369.; Lam. Ill., t. 621.; Dec. Prod., 2. p. 256.; Don's Mill., 2. p. 234.
*Synonymes.* Bonafídia *Neck. Elem.* No. 1364.; Faux Indigo, *Fr.*; Unform, *Ger.*; Amorfa, *Ital.*
*Derivation.* From *a*, privative, and *morphē*, form; in reference to the deformity of the corolla, from the want of the wings and keel.

*Gen. Char.* *Calyx* 5-toothed, obconically campanulate. *Vexillum* ovate, concave. *Wings* and *Keel* wanting. *Style* filiform, straight, glabrous. *Stamens* exserted, monadelphous at the very base. *Legume* compressed, 1-celled, 1—2-seeded. (*Don's Mill.*)

*Leaves* compound, impari-pinnate, alternate, stipulate, deciduous; stipules deciduous. *Flowers* of a blue violet colour, in spicate racemes.

Shrubs, large, deciduous; natives of North America. Leaves having many pairs of leaflets that have transparent dots in their disks, and usually minute stipules at their base. The flowers are disposed in racemes, usually grouped at the tips of the branches. The species are highly ornamental on account of their leaves, and more especially of their long spikes of flowers; which, though, when taken separately, they are small, and imperfect in regard to form, are yet rich from their number, and their colours of purple or violet, spangled with a golden yellow. The plants are not of long duration; and are liable to be broken by wind; for which reason they ought always to be planted in a sheltered situation. They produce abundance of suckers, from which, and from cuttings of the root, they are very readily propagated.

1. A. frutico'sa *Lin.* The shrubby Amorpha, *or* *Bastard Indigo.*

*Identification.* Lin. Sp., 1003.; Dec. Prod., 2. p. 256.; Don's Mill., 2. p. 234.
*Synonymes.* Wild Indigo, *Amer.*; faux Indigo, *Fr.*, Strauchartiger Unform, *Ger.*; Indaco bastardo, Barba di Giove, *Ital.*
*Engravings.* Schkuhr Handb., t. 197.; Bot. Reg., 427.; and our *fig.* 375.

*Spec. Char., &c.* Rather arborescent, somewhat villose or glabrous. Leaflets elliptic-oblong, the lowest distant from the base of the petiole. Calyx somewhat villose; 4 of its teeth obtuse, 1 acuminate. The standard glandless Legume few-seeded. (*Dec. Prod.*) An erect glabrous shrub. Carolina and Florida, on the banks of rivers. Height 9 ft. to 12 ft. Flowers very dark bluish purple; June and July. Legume brown; ripe Oct. Naked young wood greyish brown.

375. Amórpha f. uticòsa.

*Varieties.*

- *A. f.* 2 *angustifòlia* Pursh has the leaflets linear-elliptic.
- *A. f.* 3 *emarginàta* Pursh has the leaflets notched, and the calyx hoary.
- *A. f.* 4 *Lewísii Lodd. Cat.*, 1830, appears to have rather larger flowers and leaves than the species.
- *A. f.* 5 *cærùlea* Lodd. Cat., 1830, has the flowers of somewhat a paler blue. Perhaps only a variation of A. *c*ròceo-lanàta.

2. A. (f.) gla'bra *Desf.* The glabrous Amorpha, *or* *Bastard Indigo*

*Identification.* Desf. Cat. Hort. Par., 192.; Dec. Prod., 2. p. 256.; Don's Mill., 2. p. 234.
*Engraving.* Our *fig.* 376. from a specimen in Dr. Lindley's herbarium.

*Spec. Char., &c.* Rather arborescent, glabrous. Leaflets elliptic-oblong, the

lowest distant from the base of the petiole. Calyx glabrous, four of its teeth obtuse, one acuminate. Standard glanded on the outside. Legume containing few seeds. (*Dec. Prod.*) A glabrous shrub. North America. Height 3 ft. to 6 ft. Introduced in 1810. Flowers bluish purple; July and August. Legume brown; ripe in October.

376. A. (f.) glàbra.

377. A. (f.) nàna.

378. A. (f.) fràgrans.

3. A. (F.) NA'NA *Nutt.* The dwarf Amorpha, *or Bastard Indigo.*

*Identification.* Nutt. in Fras. Cat., 1813.; Nov. Gen. Amer., 2. p. 91.; Dec. Prod., 2. p. 256.; Don's Mill., 2. p. 234.
*Synonyme.* A. microphýlla *Pursh Fl. Amer. Sept.* 2. p. 466.
*Engravings.* Bot. Mag., 2112.; and our *fig.* 377.

*Spec. Char., &c.* Shrubby, dwarf, rather glabrous. Leaflets elliptical, mucronulate. Calyx glabrous, all its teeth setaceously acuminate. Legume 1-seeded. (*Dec. Prod.*) A low glabrous shrub. Native of herbage-covered hills near the Missouri. Height 1 ft. to 2 ft. Introduced 1811. Flowers purple, fragrant; July and August. Legume brown; ripe in October.

4. A. (F.) FRA'GRANS *Sweet.* The fragrant Amorpha, *or Bastard Indigo.*

*Identification.* Swt. Fl.-Gard., t. 241.; Don's Mill., 2. p. 234.
*Synonyme.* A. nàna *Sims* in *Bot. Mag.* t. 2112., but not of others.
*Engravings.* Swt. Fl.-Gard., t. 241.; Bot. Mag., t. 2112.; and our *fig.* 378.

*Spec. Char., &c.* Shrubby, pubescent. Leaves with 6—8 pairs of elliptic-oblong mucronate leaflets, obtuse at both ends, young ones pubescent. Calyx pubescent, pedicellate; superior teeth obtuse, lower one acute. Style hairy. (*Don's Mill.*) A pubescent shrub. North America. Height 7 ft. to 8 ft. Introduced in 1800. Flowers dark purple; June and July. Legume brown; ripe in September.

5. A. (F.) CRO'CEO-LANA'TA *Wats.* The Saffron-coloured-woolly Amorpha, *or tawny Bastard Indigo.*

*Identification.* Wats. Dend. Brit.; Don's Mill., 2. p. 234.
*Engravings.* Wats. Dend. Brit., t. 139.; and our *fig.* 379.

*Spec. Char., &c.* Plant clothed with tawny pubescence. Racemes branched. Leaves with 6—8 pairs of oblong-elliptic, mucronulate, downy leaflets; the 3 upper teeth of calyx ovate, acute, the 2 lower ones very short, and rounded. (*Don's Mill.*) A pubescent shrub. North America. Height 3 ft. to 5 ft. Introd. 1820. Flowers purple or purplish blue; July and August. Legume dark brown, or brown; ripe in October.

379. A. (f.) cròceo-lanàta.

♃ 6. A. (F.) CANE'SCENS *Nutt.* The canescent Amorpha, *or Bastard Indigo.*

*Identification.* Nutt. in Fras. Cat., 1813, and Gen. Amer., 2. p. 92.; Pursh Fl. Amer. Sept., 2. p. 467. ; Dec. Prod., 2. p. 256. ; Don's Mill., 2. p. 234.
*Synonyme.* ? A. pubéscens *Pursh* 2. p. 467.
*Engraving.* Our *fig.* 380. from Pursh's specimen in the Lambertian herbarium.

380. A. (f.) canescens.

*Spec. Char., &c.* Suffruticose, dwarf, all over whitely tomentose. Leaflets ovate-elliptic, mucronate, the lowest near the base of the petiole. Calyx tomentose; its teeth ovate, acute, equal. Ovary 2-ovuled. Legume 1-seeded. (*Dec. Prod.*) A low tomentose shrub ; Louisiana, on the banks of the Missouri and the Mississippi. Height 3 ft. Introd. 1812. Flowers dark blue ; July and August. Legume brown ; ripe in October.

## GENUS XI.

EYSENHA'RDT*IA* H. et B. THE EYSENHARDTIA. *Lin. Syst.* Diadélphia Decándria.

*Identification.* H. B. et Kunth Nov. Gen., vi. p. 489.; Dec. Prod., 2. p. 257. ; Don's Mill., 2. p. 234.
*Synonyme.* Dalbérg*ia* Spreng. Syst. App. 263.
*Derivation.* Named in honour of *Charles William Eysenhardt*, M.D., a professor in the University of Königsberg, in Prussia.

*Gen. Char.* *Calyx* obconically campanulate, 5-toothed ; upper teeth rather remote, lower one longest. *Petals* 5, disposed in a papilionaceous manner. *Vexillum* oblong, and the two keel petals distinct. *Stamens* diadelphous. (*Don's Mill.*)

*Leaves* compound, impari-pinnate, alternate, stipulate, deciduous; beset with glands. *Flowers* in terminal racemes, white. — An unarmed shrub or low tree ; native of Mexico.

♃ 1. E. AMORPHÖI'DES *H. et B.* The Amorpha-like Eysenhardtia.

*Identification.* H. B. et Kunth ; Dec. Prod., and Don's Mill. ; Bot. Reg. Chron., 1839, No. 55.
*Synonyme.* Dalbérg*ia* amorphöides *Spreng.*
*Engravings.* H. B. et Kunth, 6. t. 592. ; and our *fig.* 381

*Spec. Char., &c.* An unarmed low tree or shrub, with impari-pinnate leaves, composed of many pairs of stipulate leaflets, and these are, as well as the calyxes, beset with glands. Racemes terminal, cylindrical, flowers white. (*Don's Mill.*, ii. p. 234.) A deciduous shrub or low tree. Mexico, on mountains. Height 6 ft. to 10 ft ; in British gardens 4 ft. to 6 ft. Introduced in 1837. Flowers white. Legume ?.

381. Eysenhárdtia amorphöides.

This plant was raised in the Hort. Soc. Garden, and has proved quite hardy. The leaves are distinctly marked with glandular dotting ; a very unusual case among leguminous plants. The twigs are short, and so closely set upon the branches as to form a dense mass of foliage. Each is terminated by an erect compact spike, from 2 in. to 3 in. long, of white or pale yellow flowers, which, although not larger than those of a spiræa, nevertheless, from their abundance, must produce a beautiful appearance. (*Bot. Reg.*

## Genus XII.

**ROBI'NIA** Lin. The Robinia, *or* *Locust Tree*. *Lin. Syst.* Diadélphia Decándria.

*Identification.* Dec. Mém. Lég., 6.; Prod., 2. p. 261.; Don's Mill., 2. p. 237.
*Synonymes.* Pseudacàcia *Tourn. Inst.* t. 417., *Mœnch Meth.* 145.; Robinier, *Fr.*; Robinie, *Ger.*
*Derivation.* Named in honour of *Jean Robin*, a French botanist, once herbalist to Henry IV. of France, author of *Histoire des Plantes*, 12mo, Paris, 1620; printed with the second edition of Lonicer's *History of Plants*. His son Vespasian was sub-demonstrator at the Jardin des Plantes in Paris, and was the first person who cultivated the Robínia Pseud-*A*càcia in Europe.

*Gen. Char.* *Calyx* 5-toothed, lanceolate, 2 upper ones shorter and approximate. *Corolla* papilionaceous. *Vexillum* large. *Keel* obtuse. *Stamens* diadelphous, deciduous. *Ovaries* 16—20-ovulate. *Style* bearded in front. *Legume* compressed, almost sessile, many-seeded, with the valves thin and flat, margined at the seminiferous suture. (*Don's Mill.*)

*Leaves* compound, unequally pinnate, alternate, deciduous; leaflets generally ovate or obovate, petiolate. *Flowers* white or rose-coloured, in axillary usually nodding racemes. — Trees, deciduous, natives of North America, where one of the species is highly valued for its timber.

The species are prized, partly for their use, but chiefly for their beauty. They are readily propagated by seeds, large truncheons of the stem and branches, cuttings of the roots, or by grafting; and they will grow in any soil that is not too wet. Their roots are creeping, and their branches very brittle: they grow rapidly, but are generally not of long duration. Their rapid growth is a property that they have in common with all trees and plants the principal roots of which extend themselves close under the surface; because there the soil is always richest: but the same cause that produces this rapidity at first occasions the tree to grow slowly afterwards, unless the roots are allowed ample space on every side; since, as they never penetrate deep, they soon exhaust all the soil within their reach. They are, therefore, highly objectionable among ornamental shrubs, or in flower borders. For this reason, also, such trees are objectionable as hedgerow trees, or as scattered groups in arable lands; their roots proving a serious impediment to the plough, and the suckers thrown up by them choking the corn crops. Roots, on the other hand, which penetrate perpendicularly as well as horizontally, belong to more slowly, but more steadily, growing trees, which always attain a larger size in proportion to the extent of ground they occupy.

### ♃ 1. R. Pseu'd-*A*ca'cia *Lin.* The *common* Robinia, *or* False Acacia.

*Identification.* Lin. Sp., 1043.; Dec. Prod., 2. p. 261.; Don's Mill., 2. p. 237.
*Synonymes.* Æschynómene Pseudacàcia *Rozb.*; Pseudacàcia odoràta *Mœnch Meth.* 145.; Locust Tree, *Amer.*; the Bastard Acacia; Robinier faux Acacia, Acacia blanc, Carouge des Américains, *Fr.*; gemeine Acacie, Schotendorn, *Ger.*
*Derivation.* This tree, when first introduced, was supposed to be a species of the Egyptian acacia, (*A*càcia vêra), from its prickly branches and pinnated leaves, which resembled those of that tree. It was named the locust tree by the missionaries, who fancied that it was the tree that supported St. John in the wilderness. It is not, however, a native of any other part of the world than North America. The name Carouge is the French word for carob bean, the locust tree of Spain; which, being also a native of Syria, is, probably, the true locust of the *New Testament*. The German name of Schotendorn is composed of *schote*, a pod, or legume, and *dorn*, a thorn.
*Engravings.* Lam. Ill., t. 666.; N. Du Ham., 2. t. 16.; the plate of this species in Arb. Brit., 1st edit., vol. v.; and our *fig.* 382.

*Spec. Char., &c.* Prickles stipular. Branches twiggy. Racemes of flowers loose and pendulous; and smooth, as are the legumes. Leaflets ovate. The flowers are white and sweet-scented; the roots creeping, and their fibres sometimes bearing tubercles. (*Dec. Prod.*) A deciduous tree, above the middle size. North America. Canada to Carolina. Height 70 ft. to 80 ft. Introduced in 1640. Flowers white; May and June. Legume compressed, dark purplish brown; ripe in September. Decaying leaves yellow. Naked young wood purplish brown.

*Varieties.* The plant varying much in its different native localities, and also having been long cultivated from seeds in Europe, the varieties are numerous. Some of those included in the following list appear in our *Hortus Britannicus*, and in Don's *Miller*, as species; while some hybrids, such as R. hýbrida and R. intermèdia, might also have been considered as varieties, but we have preferred keeping them apart.

- ♆ *R. P.* 2 *flòre lùteo* Dumont 6. p. 140. has the flowers yellow.
- ♆ *R. P.* 3 *inérmis* Dec. Prod. ii. p. 261., Dec. Cat. Hort. Monsp. 136.—Prickles wanting, or nearly obsolete. Leaflets flat. Plant of free growth, in which respect it differs from R. P. umbraculífera.
- ♆ *R. P.* 4 *críspa* Dec. Prod. ii. p. 261.—Prickles wanting. Leaflets all, or for the most part, undulately curled.
- ♆ *R. P.* 5 *umbraculífera* Dec. Prod. ii. p. 261., Cat. Hort. Monsp. 157. R. inérmis *Dum. Cours.* vi. p. 140.—Prickles wanting. Branches much crowded, and smooth. Head orbicular. Leaflets ovate. This variety is said to have been raised from the seed of R. Pseùd-*Acàcia*; and, according to Dumont de Courset, to have yellow flowers. It has been common in British gardens since 1820, but has not yet flowered in this country.
- ♆ *R. P.* 6 *tortuòsa* Dec. Prod. ii. p. 261.; and the plate in Arb. Brit., 1st edit., vol. v.—Branches much crowded, and twisted. Racemes similar to those of R. Pseùd-*Acàcia*, but smaller and fewer-flowered.
- ♆ *R. P.* 7 sophoræfòlia Lodd. Cat. 1830 has the leaves large, and somewhat like those of *Sophòra* japónica.
- ♆ *R. P.* 8 *amorphæfòlia* Lk. has leaves somewhat like those of Amórpha fruticòsa.
- ♆ *R. P* 9 *strícta* Lk. has the general tendency of the shoots upright; but still the plant is not so fastigiate as the Lombardy poplar.
- ♆ *R. P.* 10 *procèra* Lodd. Cat. 1830.—A tall vigorous-growing variety.
- ♆ *R. P.* 11 *péndula* Ort. Dec. p. 26.—The shoots are somewhat drooping, but not very decidedly so.
- ♆ *R. P.* 12 *monstròsa* Lodd. Cat. 1830.—The leaves are large, and twisted.
- ♆ *R. P.* 13 *macrophýlla* Lodd. Cat. 1830 has the leaves long, and the leaflets broad.
- ♆ *R. P.* 14 *microphýlla* Lodd. Cat. 1830, R. angustifòlia *Hort.*, has the leaves small, and the leaflets narrow.
- ♆ *R. P.* 15 *spectábilis* Dum. has large leaves and is without prickles: it produces straight vigorous shoots, which are angular when young. It was raised from seed by M. Descemet, at St. Denis, and was formerly known in the French nurseries by the name of Acacia agaçante (enticing).
- ♆ *R. P.* 16 *latisíliqua*, the broad-podded locust, is mentioned in Prince's *Catalogue* for 1829.

Most of these varieties are tolerably distinct in the foliage when the plants are young. Those best worth cultivating, for the shape of the tree, are R. P. umbraculífera, the parasol acacia; R. P. péndula; R. P. strícta, the upright-growing sort; and R. P. spectábilis. With regard to the yellow-flowered variety, it may be worth continuing by grafting or suckers; but, to make quite sure of having white flowers, the trees producing them ought to be propagated by grafting also; as plants raised from seed, though for the most part they have white flowers, yet occasionally produce yellowish ones.

The wood, which is commonly of a greenish yellow colour, marked with brown veins, is hard, compact, and susceptible of a bright polish: it has a good deal of strength, and is very durable; but it has not much elasticity, and is somewhat liable to crack. A cubic foot of locust wood, newly cut, weighs 63 lb. 3 oz.; half-dry, 56 lb. 4 oz.; and, when quite dry, only 48 lb. 4 oz. Its value for fuel, when compared with that of the beech, is as 12 to 15. For duration Hartig places it immediately after the oak, before the larch and the

382. Robínia Pseùd-Acàcia

Scotch pine. According to Barlow, the strength of acacia timber, as compared with fine English oak, is as 1867 to 1672; the strength of ash being as 2026; beech, 1556; elm, 1013; Riga fir, 1108; Norway spar (spruce fir), 1474; and teak, 2462. The tree has one property almost peculiar to it, that of forming heart-wood at a very early age, viz. in its third year; whereas the sap-wood of the oak, the chestnut, the beech, the elm, and most other trees, does not begin to change into heart, or perfect, wood, till after 10 or 15 years' growth. The trees of this species, and of several of its varieties, in the garden of the Horticultural Society, and in the arboretum of Messrs. Loddiges, have attained the height of 30 ft. and upwards, in 10 years from the time they were planted. There is, perhaps, no American tree respecting which so much has been said and done, in Europe, as the locust. It was one of the first trees that we received from America, and it has been more extensively propagated than any other, both in France and England. It has been alternately extolled and neglected in both countries; and even at the present time, though the beauty of its foliage and flowers is generally acknowledged, and though it has, at different periods, been enthusiastically praised by different writers, for the valuable properties of its wood, it cannot be considered as holding a high rank as a timber tree, or as being worth planting with a view to profit. We pass over many curious and historical facts respecting the locust tree, for which we refer to the 1st edit. of this work, and come to the year 1823, when an extraordinary sensation was excited in Britain respecting this tree by Cobbett. This writer, while in America, from 1817 to 1819, "was convinced that nothing in the timber way could be so great a benefit as the general cultivation of this tree." On his return to England he commenced nurseryman, and the name of locust, as applied to this tree, being, before Cobbett's time, almost forgotten in England, many persons, in consequence, thought it was a new tree. Hence, while quantities of plants of Robínia Pseùd-Acàcia stood unasked for in the nurseries, the locust, which every one believed could only be had genuine from Mr. Cobbett, could not be grown by him in sufficient quantities to supply the demand. After creating a prodigious sensation for a few years, the locust mania entirely subsided, and the tree is now, as it was before Cobbett's time, planted only, or chiefly, for ornament.

### ♃ 2. R. VISCO'SA *Vent.* The clammy-*barked* Robinia.

*Identification.* Vent. Hort. Cels., t. 4.; Dec. Prod., 2. p. 262.; Don's Mill., 2. p. 238.
*Synonymes.* R. glutinòsa *Bot. Mag.* 560.; R. montàna *Bartram*; the Rose-flowering Locust.
*Engravings.* Vent Hort. Cels., t. 4.; Bot. Mag., t. 560., as R. glutinòsa; the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 383.

*Spec. Char., &c.* Branches and legumes glandular and clammy. Racemes crowded, erect. Bracteas concave, deciduous, each ending in a long bristle.

383. Robínia viscòsa.

The 3 lower teeth of the calyx acuminated. Roots creeping. (*Dec. Prod.*) A clammy-barked tree. South Carolina and Georgia, near rivers. Height 30 ft. to 40 ft. Introduced in 1797. Flowers scentless, pale pink mixed with white, varying to pale purple or violet colour according to the soil; June to August. Legume brown; ripe in October. Naked young wood purplish and clammy.

The bark, particularly that of the young shoots, which is of a dull red, is covered with a clammy substance, which, when touched, sticks to the fingers. In every other respect, both in natural characters and artificial culture, this tree strongly resembles the common R. Pseùd-*A*càcia.

♆ 3. R. DU'BIA *Fouc.* The doubtful Robinia, *or False Acacia.*

*Identification.* Fouc. in Desv. Journ. Bot., 4. p. 204., but not of Poir.; Dec. Prod., 2. p. 261.; Don's Mill., 2. p. 238.
*Synonymes.* R. hýbrida *Audib.*; R. ambígua *Poir. Suppl.* 4. p. 690.; and, perhaps, R. echinàta *Mill. Dict.*, No. 2.; R. intermêdia *Soulange-Bodin* in *Ann. d'Hort. de Paris*, 2. p. 43.
*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* Spines very short. Branches, petioles, peduncles, and calyxes furnished with a few glands, rarely clammy. Leaflets ovate. Racemes loose and pendulous. Bracteas concave, caducous, ending each in a long bristle. (*Don's Mill.*) A deciduous tree, rather under the middle size. Hybrid? between R. Pseùd-*A*càcia and R. viscòsa. Originated in ? 1730. Flowers sweet-scented, pale rose-coloured; June to August. Pods brown, thickly beset with short prickles; ripe in October.

♆ ♣ 4. R. HI'SPIDA *Lin.* The hispid Robinia, *or Rose Acacia.*

*Identification.* Lin. Mant., 101.; Dec. Prod., 2. p. 262.; Don's Mill, 2. p. 238.
*Synonymes.* R. rôsea *N. Du Ham.* 1. t. 18.; R. montàna *Bartr. Voy.* 2. p. 128.; *Æschynómene* híspida *Roxb.*
*Engravings.* Mill. Ic., t. 244.; Bot. Mag., 311.; and our *fig.* 384.

*Spec. Char., &c.* Spines wanting. Leaflets obovate. Branches and legumes hispid. Racemes loose; the 3 lower teeth of the calyx acuminated. (*Dec. Prod.*) A shrub, or low tree. Carolina, in pine woods. Height 6 ft. to 20 ft. Introduced in 1758. Flowers large, dark rose-coloured; June to October. Legume brown; ripe in October and November. Naked young wood purplish brown, thickly beset with prickles.

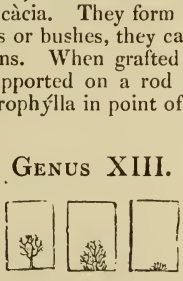
384. Robínia hispida.

*Varieties.*

- *R. h.* 2 *nàna* Dec. is a plant hardly a foot high, found in pine woods in Carolina
- *R. h.* 3 *ròsea* Pursh has the leaflets for the most part alternate, and the branches smoothish. In its native habitats, on the high mountains of Virginia and Carolina, it grows, according to Pursh, to a considerable shrub, whereas the species is a low straggling plant.
- *R. h.* 4 *macrophýlla* Dec., R. grandiflòra *Hort.*, figured in Arb. Brit., 1st edit., vol. v., has the leaflets large, and ovate-roundish; and the branches and peduncles glabrous, and without prickles.

The species, and the different varieties, are shrubs or low trees, with tortuous and very brittle branches, and leaves and flowers nearly twice the size of those of Robínia Pseùd-*Acàcia*. They form singularly ornamental shrubs for gardens; but, as standards or bushes, they can be only planted with safety in the most sheltered situations. When grafted standard high, and trained to a wire parasol-like frame, supported on a rod or post 6 or 8 feet high, few plants are equal to R. h. macrophýlla in point of brilliant display.

## Genus XIII.



*CARAGA'NA* Lam. The Caragana, *or Siberian Pea Tree.*
*Lin. Syst.* Diadélphia Decándria.

*Identification.* Lam. Dict., 1. p. 611.; Dec. Prod., 2. p. 268.; Don's Mill., 2. p. 243.
*Synonyme.* Robínia sp. *L.*
*Derivation.* *Caragan* is the name of *C.* arboréscens among the Mongol Tartars.

*Gen. Char.* *Calyx* short, tubulous, 5-toothed. *Corolla* obtuse, straight; the wings and vexillum about equal in length. *Stamens* diadelphous. *Style* glabrous. *Stigma* terminal, truncate. *Legume* sessile, young ones compressed, at length somewhat cylindrical and many-seeded, mucronate by the style. *Seeds* somewhat globose. (*Don's Mill.*)

*Leaves* compound, abruptly pinnate, alternate, stipulate, deciduous; stipules usually spinescent. *Flowers* mostly yellow.

Trees or shrubs, natives of Siberia and of the East. Leaves with the leaflets mucronate, and the petioles either with a bristly or a spiny point; their flowers axillary, each on a distinct pedicel, usually several together, pale yellow, except in *C.* jubàta, in which they are white tinged with red; their stipules usually become spines. They are all ornamental or curious, and of the easiest culture in any common soil; propagated by cuttings of the roots or by seeds. The dwarf and pendulous-growing species, when grafted standard high on *C.* arboréscens, form very singular trees.

✝ 1. *C.* arbore'scens *Lam.* The arborescent Caragana, *or Siberian Pea Tree.*

*Identification.* Lam. Dict., 1. p. 615.; Dec. Prod., 2. p. 268.; Don's Mill., 2. p. 243.
*Synonymes.* Robínia *Caragàna* Lin. Sp. 1044, N. Du Ham. 2. t. 19., Pall. Fl. Ross. 1. t. 42.; *Caragàna* sibírica *Ray*; fausse Acacie de Sibérie, Robinie de Sibérie, Arbre aux Pois des Russes, *Fr.*; Sibirische Erbsenbaum, *Ger.*; Gorochoik, *Russ.*
*Engravings.* N. Du Ham., 2. t. 19.; Pall. Fl. Ross., 1. t. 42., middle figure; the plate of this species in Arb. Brit., 1st edit., vol. v.; and our *fig.* 385.

*Spec. Char., &c.* Leaves with 4—6 pairs of oval-oblong villous leaflets. Petiole unarmed. Stipules spinescent. Pedicels in fascicles. (*Don's Mill.*) A low tree. Siberia, in woods, and upon the banks of rivers. Height 15 ft. to 20 ft. Introduced in 1752. Flowers yellow; April and May. Legume brown; ripe in August.

*Variety.*

ϒ C. *a.* 2 *inérmis* Hort. has the branches without spines. Plants in the Horticultural Society's Garden.

Pallas informs us that upon the banks of rivers it grows to the height of 18 ft. or more; but in arid places it is only a small shrub; in the latter state forming, as we think, the varieties *C.* (a.) *Altagàna*, and *C.* (a.) microphýlla. *C.* arboréscens forms an erect stiff tree, with numerous upright-growing branches. The flowers are axillary, one on a pedicel; the pods are oblong-taper, and each contains 3 or 4 seeds. The wood is hard, compact, and very tough; yellow on the outside; and within, waved and striped with red, and with reddish brown.

385. *C.* arboréscens.

2. *C.* (A.) *ALTAGA'NA* Poir. The Altagana Caragana, *or Siberian Pea Tree.*

386 *C.* (a.) *Altagàna.*

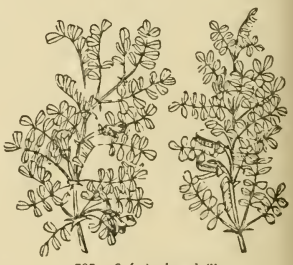
*Identification.* Poir. Sup., 2. p. 89.; Dec. Prod., 2. p. 268.; Don's Mill., 2. p. 243.
*Synonymes.* Robínia *Altagàna* Pall. Fl. Ross. t 42., L'Hérit. Stirp. t. 76.; *Caragàna* microphýlla *Lam. Dict.* 1. p. 615.
*Derivation.* *Altagana* is the name of the shrub in Siberia.
*Engravings.* Pall. Fl. Ross., t. 42., under the name of Robínia *Altagàna*; L'Hérit. Stirp., t. 76.; and our *fig.* 386.

*Spec. Char., &c.* Leaves having 6 or 8 pairs of glabrous, obovate-roundish, retuse leaflets. Petiole unarmed. Stipules spinescent. Pedicels solitary. Legumes rather compressed. (*Don's Mill.*) A low shrub. Siberia, in arid plains. Height 3 ft. to 4 ft. Introd. 1789. Flowers yellow; April to July. Legume brown; ripe in September.

Usually propagated by grafting on *C.* arboréscens.

3. *C.* (A.) MICROPHY'LLA *Dec.* The small-leaved Caragana, *or Siberian Pea Tree.*

*Identification.* Dec. Prod., 2. p. 268.; Don's Mill., 2. p. 243.
*Synonymes.* Robínia microphýlla *Pall. Fl. Ross.* t. 42., f. 1, 2.; *Caragàna Altagàna* var. *Poir. Suppl.* 2. p. 89.
*Engravings.* Pall. Fl. Ross., t. 32. f 1, 2., under the name of Robínia microphýlla; and our *fig.* 387.



387. *C.* (a.) microphýlla.

*Spec. Char., &c.* Leaves with 6—7 pairs of hoary retuse leaflets. Petioles and stipules rather spinescent at the apex. Root creeping. (*Don's Mill.*) A low shrub. Siberia, in the Desert of Baraba, and in other arid places. Height 2 ft. to 3 ft. Introduced in 1819. Flowers yellow; April to June. Legume brown; ripe in August.

4. *C.* (A.) REDO'WSKI Dec. Redowski's Caragana, *or Siberian Pea Tree.*

*Identification.* Dec. Légum., t. 11.; Don's Mill., 2. p. 243.
*Engraving.* Dec. Légum., t. 11. f. 45, in the seedling state.

*Spec. Char., &c.* Leaves with two pairs of ovate, acute, smooth leaflets. Stipules spinose. Flowers yellow. (*Don's Mill.*) A low shrub. Siberia. Height 4 ft. to 5 ft. Introduced in 1820. Flowers yellow; April and May. Legume brown; ripe in August.

*Variety.*

C. (A.) *R.* 2 *præ'cox* Fisch. only differs from *C.* Redówski in coming into flower earlier. The specimen in the Hort. Soc. Garden was in full leaf, and in flower, on April 30. 1836, when *C.* frutéscens and *C.* arboréscens had not a single leaf expanded.

In general appearance and habit of growth, it resembles *C. Altagàna*, of which it is probably only a variety. H. S.

5. *C.* (A.) ARENA'RIA *Donn* and *Sims.* The Sand Caragana.

*Identification.* Donn Hort. Cant.; Sims Bot. Mag., t. 1886.
*Engravings.* Sims Bot. Mag., t. 1886.; and our *fig.* 388.

*Spec. Char., &c.* Leaves with, usually, 4 or more pairs of obcordate leaflets. Pedicels usually twin, and shorter than the flowers. Stipules subulate. Flowers yellow. (*Don's Mill.*) A low shrub. Siberia. Height 1 ft. to 2 ft. Introd. 1802. Flowers yellow; April and May. Legume dark brown; ripe in August.

388 *C.* (a.) arenária.

Probably only another variety of *C.* arboréscens. It ripens seeds in England, but is generally propagated by grafting.

6. *C.* FRUTE'SCENS *Dec.* The shrubby Caragana.

*Identification.* Dec. Prod., 2. p. 268.; Don's Mill., 2. p. 843.
*Synonymes.* Robínia frutéscens *Lin. Spec.* 1044., *Pall. Fl. Ross.* t. 43.; *C.* digitàta *Lam. Dict.* 1. p. 616.
*Engravings.* Swt. Fl.-Gard., t. 227.; Pall. Fl. Ross., t. 43., as Robínia frutéscens; and our *fig.* 389.

*Spec. Char., &c.* Leaves having 2 pairs of leaflets, which approximate near the top of the petiole: they are obovate-cuneated. Stipules membranous. Petiole furnished with a short spine at the apex. Pedicels solitary, twice the length of the calyx. Flowers yellow, resupinate. Leaves with a yellow hue. (*Don's Mill.*) A low shrub. Native of Russia, on the banks of the Wolga and other rivers. Height in open situations 5 ft.; in woods and gardens 9 ft. to 10 ft. Introduced in 1752. Flowers yellow; May. Legume brown; ripe in August.

389. *C.* frutéscens.

*Varieties.* DeCandolle mentions two forms:—

C. *f.* 1 *latifòlia*, which has glabrous broadly obovate leaflets, and is frequent in gardens; there being a subvariety, with 2-flowered peduncles; and

C. *f.* 2 *angustifòlia*, which has glabrous oblong cuneated leaflets, and is found near Odessa.

A handsome shrub, sometimes grafted standard high on *C.* arboréscens.

390. *C.* (f.) móllis.

7. *C.* (F.) MO'LLIS *Bess.* The soft Caragana.

*Identification.* Bess. Enum. Pl. Volh., p. 29.; Don's Mill., 2. p. 243.
*Synonymes.* Robínia móllis *Bieb. Fl. Taur Suppl.* 477.; Robínia tomentòsa *Fisch. Hort. Gorenk.* 1818; *Caragàna* frutéscens var. móllis *Dec. Prod.* 2. p. 268.
*Engraving.* Our *fig.* 390. from a specimen in Dr. Lindley's herbarium.

*Spec. Char., &c.* Leaves with 2 pairs of oblong, cuneated, approximate leaflets, near the tip of the petiole, clothed with soft hair. Petiole ending in a short spine. Pedicels solitary. Flowers yellow. (*Dec. Prod.*) A low shrub. Native of Tauria and Podolia. Height 2 ft. to 3 ft. Introduced in 1818. Flowers yellow; April and May. Legume brown; ripe in August.

### ✠ 8. *C.* PYGMÆ'A *Dec.* The pygmy Caragana.

*Identification.* Dec. Prod., 2. p. 268.; Don's Mill., 2 p. 243
*Synonyme.* Robinia pygmæ'a *Lin. Sp.* 1044., *Pall. Fl. Ross.* 1. t. 45., *Amm. Ruth.* t. 35.
*Engravings.* Pall. Fl. Ross., 1. t. 45.; Amm. Ruth., t. 35., as Robinia pygmæ'a; and our *fig.* 391

*Spec. Char., &c.* Leaves with 2 pairs of linear, glabrous, approximate leaflets near the tip of the petiole, which is very short. Stipules and petioles spinescent. Pedicels solitary, and nearly the length of the calyx. Calyx nearly equal at the base. Leaflets acute, crowded, usually in the axils of trifid spines. Flowers yellow. (*Dec. Prod.*) A low shrub. Native of the Altaic Mountains. Height 2 ft. to 6 ft. Introduced in 1751. Flowers yellow; April and May. Legume brown; ripe in August.

391. *C.* pygmæ'a.

*Variety.*

✠ C. *p.* 2 *arenária* Fisch. has linear-cuneate leaflets, and pedicels of the flowers generally longer than the calyx.

This species has large trifid spines, slender leaves, and small flowers. The leaflets are remarkable for being in fours, disposed in the form of a star, in the axils of the spines. The young shoots are of a fine yellow, very tough, and fit for being used as withs. When grafted as a standard on *C.* arboréscens, it forms a small tree of very singular appearance. Increased by suckers or by grafting.

### ✠ 9. *C.* SPINO'SA *Dec.* The spiny Caragana.

*Identification.* Dec. Prod., 2. p. 269.; Lindl. Bot. Reg., 1021.; Don's Mill., 2. p. 243.
*Synonymes.* Robinia spinòsa *Lin. Mant.* 269.; Robinia fèrox *Pall. Fl. Ross.* 1. t. 44., *Itin.* t. E. e. f. 2. and 3.; Robinia spinosíssima *Laxm. Nov. Act. Pet.* 15. t. 30. f. 4.; *Caragana* fèrox *Lam. Dict.* 1. p. 315.
*Engravings.* Pall. Fl. Ross., 1. t. 44.; Bot. Reg., t. 1021.; and our *fig.* 392.

*Spec. Char., &c.* Leaves with 2—4 pairs of cuneate-linear glabrous leaflets. Stipules small, spinose. Adult petioles permanent, strong, and spinose, twice the length of the leaflets. Flowers solitary, almost sessile, and of a bright yellow. Legume rather compressed. (*Don's Mill.*) A spiny shrub. Siberia, in gravelly arid situations; and also said to be plentiful in China, about Pekin, where branches of it are stuck in clay upon the tops of the walls, in order that its spines may prevent persons from getting over them. (*Pall. Fl. Ross.*) Height 3 ft. to 4 ft. Introduced in 1755. Flowers yellow; April and May. Legume brown; ripe in August.

392. *C.* spinòsa.

Seeds, cuttings, or grafting. Standard high it makes a very singular plant.

393. *C.* tragacanthòides.

### ✠ 10. *C.* TRAGACANTHÖI'DES *Poir.* The Goat's-thorn-like Caragana.

*Identification.* Poir. Suppl., 2. p. 90.; Dec. Prod., 2. p. 269.; Don's Mill., 2. p. 244.
*Synonymes.* Robinia tragacanthòides *Pall. Nov. Act. Pet.* 13. t. 7., *Astr.* 115. t. 86.; Robinia tragacantha *Lodd. Cat.*
*Engravings.* Pall. Nov. Act. Pet., 10. t. 7.; Astr., 115. t. 86.; and our *fig.* 393.

*Spec. Char., &c.* Leaves with 2—4 pairs of oblong-lanceolate silky leaflets, ending in a little spine. Stipules spinescent. Adult petioles permanent, strong, and spinose, twice the length of the leaflets. Pedicels solitary, short. Legume hoary-villous. (*Don's Mill.*) A low spiny shrub. Native of Siberia, among granite rocks. Height 6 in. to 1 ft. Introduced in 1816. Flowers yellow, drooping; April and May. Legume brown; ripe in August. When grafted standard high, it forms a very singular object.

♃ 11. *C.* JUBA'TA *Poir.* The crested Caragana.

*Identification.* Poir. Suppl., 2. p. 89.; Dec Prod., 2 p. 269.; Don's Mill., 2. p. 244.
*Synonyme.* Robínia jubàta *Pall.* in *Act. Pet.* 10. t. 6., *Astr.* p. 113. t. 85., *Lodd. Bot. Cab.* t. 522.
*Engravings.* Pal. Act. Pet., 10. t. 6.; Lod. Bot. Cab., t. 522., as Robinia jubâta; and our *fig.* 394.

*Spec. Char., &c.* Leaves with 4 or 5 pairs of oblong-lanceolate lanuginously ciliated leaflets. Stipules setaceous. Petioles somewhat spinose; adult ones deflexed, filiform, permanent. Pedicels solitary, very short. Legume glabrous. Flowers few and white, suffused with red. (*Don's Mill.*) A low shrub; native of Siberia near Lake Baikal. Height 1 ft. to 1 ft. 6 in. Introduced in 1796. Flowers white, tinged with red; April and May. Legume brown; ripe in August.

394. *C.* jubàta.

This species has a curious shaggy appearance, occasioned by the footstalks of the leaves being bristly or thorny, and remaining on long after the leaflets have dropped off. Increased by grafting on *Caragàna* arboréscens, and as a standard forming a very singular-looking object.

♃ 12. *C.* GRANDIFLO'RA *Dec.* The great-flowered Caragana.

*Identification.* Dec. Prod.,2. p. 268.; Don's Mill., 2. p. 243.
*Synonyme.* Robínia grandiflòra *Bieb. Fl. Taur.* 1. p. 168.
*Engraving.* Our *fig.* 395.

*Spec. Char., &c.* Leaves with 2 pairs of oblong-cuneated approximate leaflets, near the tip of the petiole, which is very short. Stipules and petioles spinose. Pedicels solitary, almost the length of the calyx, which is gibbous at the base. Legume terete, acute, brown, glabrous. Flowers 1 in. long, yellow. (*Don's Mill.*) A low shrub; native of Georgia, near Teflis. Height 2 ft. to 4 ft. Introduced in 1823. Flowers yellow, 1 in. long; June and July. Legume brown; ripe in September. H. S.

395. *C.* grandiflòra

♃ 13. *C.* CHAMLA'GU Lam. The Chamlagu, *or Chinese* Caragana.

*Identification.* Lam. Dict., 1. p. 616.; Dec. Prod , 2. p. 268.; Don's Mill., 2. p. 243.
*Synonyme.* Robínia *Chamlàgu* L'Hérit. Stirp., N. Du Ham.
*Engravings.* L'Hérit. Stirp., t. 77.; N. Du Ham. Arb., 2. t. 21.; and our *fig.* 396.

*Spec. Char., &c.* Leaves with 2 pairs of distant, oval, or obovate, glabrous leaflets. Stipules spreading, and, as well as the petioles, spinose. Pedicels solitary. Flowers pendulous, large, and yellow, at length becoming reddish. Root smelling like liquorice. (*Don's Mill.*) A diffuse smooth shrub. Native of China. Height 2 ft. to 4 ft. Introduced in 1773. Flowers yellow, at length becoming reddish, large; May and June. Legume brown; ripe August.

396. *C. Chamlàgu.*

This species has a thick root and branching stem, with grey bark. The branches are alternate; at first upright, and then decumbent. The whole plant has a singular appearance, more especially when just going out of flower. It is generally propagated by separating the offsets, or by seeds, or it may be grafted on *C.* arboréscens. Grafted on this species, especially when the stock is 10 or 12 feet high, it forms a singularly picturesque pendulous tree; beautiful not only when it is in leaf or in flower, but from the graceful lines formed by its branches, even in the midst of winter, when they are completely stripped of their leaves.

## Genus XIV.

### HALIMODE'NDRON *Fisch.* The Halimodendron, *or* Salt Tree. *Lin. Syst.* Diadélphia Decándria.

*Identification.* Fisch. in Litt.; Dec. Légum. Mém., 6.; Prod., 2. p. 269.; Don's Mill., 2. p. 244.
*Synonyme.* Halodéndron *Dec. Mém. ined.* in *Soc. Phys. Gen.* March 1824, but not of Petit Thouars.
*Derivation.* From *halimos*, maritime, and *dendron*, a tree; in reference to the habitat of the shrubs, which grow in dry naked salt fields, by the river Irtis, in Siberia.

*Gen. Char. Calyx* urceolately campanulate, with 5 short teeth. *Keel* obtuse, straightish. *Wings* very acute, and auricled. *Stamens* diadelphous, about equal in length. *Style* filiform, glabrous. *Stigma* terminal. *Legume* stipitate, inflated, bladdery, hard, ovate, and few-seeded, depressed at the seminiferous suture. *Seeds* oval. (*Don's Mill.*)

*Leaves* compound, alternate, stipulate, deciduous; abruptly pinnate, with 2 pairs of leaflets: petioles and stipules spinose. *Flowers* bluish pink, or purplish, in 2—3-flowered peduncles.—Shrubs, deciduous; natives of Europe and Asia.

Propagated by seeds, by cuttings of the roots, or by grafting on the common laburnum, or on the *Caragàna* arboréscens.

#### 1. H. arge'nteum *Dec.* The silvery-*leaved* Halimodendron, *or* Salt Tree.

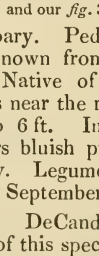
*Identification.* Dec. Prod., 2. p. 269.; Don's Mill., 2. p. 244.
*Synonymes* Robínia Halodéndron *Lin. fil. Suppl.* 330., *Pall. Fl. Ross.* t. 36.; *Caragàna* argéntea *Lam.* in *Pall. Itin. ed. Gall.* App. ii. 360. t. 83. f. 1.
*Engravings.* Pall. Fl. Ross., t. 36.; and our *fig.* 397.

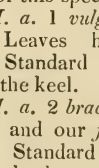
*Spec. Char., &c.* Leaves hoary. Peduncles 2-flowered. (*Don's Mill.*) A shrub, known from the colour of its leaves and branches. Native of Siberia in saline steppes near the river Irtis. Height 4 ft. to 6 ft. Introduced in 1779. Flowers bluish pink, fragrant; May to July. Legume inflated, brown; ripe in September.

397 H. argénteum.

*Varieties.* DeCandolle mentions two forms of this species:—

- *H. a.* 1 *vulgàre* Dec. Prod.—Leaves hoary or silvery. Standard the same length as the keel.
- *H. a.* 2 *brachysèma* Dec. Prod. (Bot. Mag., 1016.; and our *fig.* 398.)—Leaves hoary or silvery. Standard shorter than the wings and keel. Style short.





398. H a. brachysèma

✻ *H. a.* 3 *Sievérsii*, H. Sievérsii Fisch., is a dwarf variety, very hardy, named by some as a species. H. S.

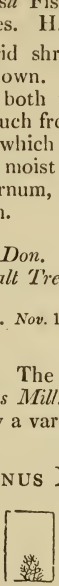
An irregular, much-branched, rigid shrub, with a strigose grey bark, and leaves clothed with a whitish silky down. The flowers are numerous, resembling those of *L*áthyrus tuberòsus, both in colour and size; and they smell sweet. According to Pallas, it is much frequented by insects, especially of the genus Méloe *L.*, many species of which are peculiar to Siberia. It flowers freely from May to July, and, in moist seasons, later; and, when grafted standard high on the common laburnum, it forms one of the most graceful drooping trees that can adorn a lawn.

✻ 2. H. (A.) SUBVIRE'SCENS *G. Don.* The greenish Halimodendron, *or Salt Tree.*

*Identification.* Don's Mill., 2. p. 244.
*Synonymes.* Robinia triflòra *L'Hérit. Stirp. Nov.* 162.; H. argénteum β subviréscens *Dec. Prod.* 2. p. 169.
*Engraving.* Our *fig.* , in p. .

*Spec. Char., &c.* Leaves greenish. The standard of the same length as the keel. Pedicels 3-flowered. (*Don's Mill.*) A shrub, like the preceding one, of which it is, without doubt, only a variety.

## GENUS XV.



CALO'PHACA *Fisch.* THE CALOPHACA. *Lin. Syst.* Diadélphia Decándria.

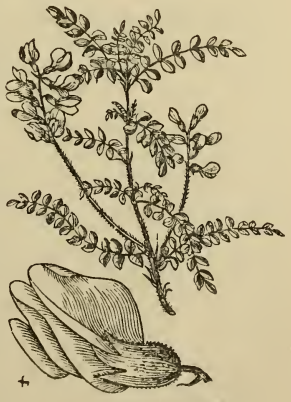
*Identification.* Fisch. ined.; Dec. Prod., 2. p. 270.
*Derivation.* From *kalos*, beautiful, and *phakē*, a lentil; in allusion to the beauty of the plant, and to its being one of the leguminaceous kind.

*Gen. Char. Calyx* 5-cleft, the lobes acuminated. *Keel* obtuse. *Stamens* diadelphous. *Style* villous and straight at the base, but glabrous incurved at the apex. *Stigma* terminal. *Legume* sessile, oblong, somewhat cylindrical, mucronate, 1-celled. *Valves* concave, beset with soft hairs, as well as with stiff glandular bristles, mixed. (*Don's Mill.*)

*Leaves* compound, alternate, stipulate, deciduous; impari-pinnate: stipules lanceolate. *Flowers* yellow.—A shrub, native of Siberia.

✻ 1. *C.* WOLGA'RICA *Fisch.* The Wolga Calophaca.

*Identification.* Fisch. in Litt.; Dec. Prod., 2. p. 270.; Don's Mill., 2. p. 244.
*Synonymes.* Cýtisus nígricans *Pall. Itin.* 3. p. 764. t. G. g. f. 3., *ed. Gall. Append.* No. 358. t. 101. f. 1.; Cytisus pinnàtus *Pall. Fl. Ross.* 1. t. 47.; Cýtisus wolgáricus *Lin. fil. Suppl.* 327., *N. Du Ham.* 1. t. 48.; Colutea wolgárica *Lam.*; Adenocárpus wolgénsis *Spreng. Syst.* 3. p. 226.
*Engravings.* Pall. Fl. Ross., 4. t. 47.; N. Du Ham., 5. t. 48.; and our *fig.* 399.



399. Calóphaca wolgárica.

*Spec. Char., &c.* Leaflets 6 or 7 pairs, orbicular, velvety beneath, as well as the calyxes. (*Don's Mill.*) A deciduous shrub. Siberia, in desert places near the rivers Don and Wolga, in a gravelly or sandy soil. Height 2 ft. to 3 ft. Introduced in 1780. Flowers yellow; June. Legume reddish; ripe in August.

Being somewhat difficult to propagate except by seeds, which, however, in fine seasons, it produces in abundance, it is not so common as it ought to be in British gardens. Grafted standard high on the common laburnum, it forms

an object at once singular, picturesque, and beautiful, whether when covered with blossoms, or with its fine reddish pods.

## Genus XVI.

### COLU'TEA *R. Br.* The Colutea, *or* Bladder Senna. *Lin. Syst.* Diadélphia Decándria.

*Identification.* R. Br. in Hort. Kew., ed. 2., vol. 4. p. 325.; Dec. Prod., 2. p. 270.; Don's Mill., 2. p. 244.
*Synonymes.* Baguenaudier, *Fr.*; Senna falsa, *Ital.*; Blasenbaum, *Ger.*
*Derivation.* From *kolouō*, to amputate. The shrubs are said to die if the branches are lopped off. *Koloutea* is also the name of a plant mentioned by Theophrastus.

*Gen. Char. Calyx* 5-toothed. *Vexillum* flat, bicallose, larger than the keel, which is obtuse. *Stamens* diadelphous. *Stigma* lateral, hooked under the top of the style. *Style* bearded longitudinally behind. *Legume* stipitate, ovate, boat-formed, inflated, scarious. (*Don's Mill.*)

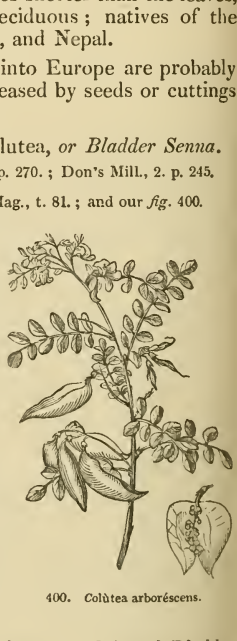
*Leaves* compound, alternate, stipulate, deciduous; impari-pinnate: stipules small. *Flowers* usually yellow, axillary, the racemes shorter than the leaves, and succeeded by bladdery legumes. — Shrubs, deciduous; natives of the Middle and South of Europe, the North of Africa, and Nepal.

All the kinds that have hitherto been introduced into Europe are probably only varieties of one species. They are readily increased by seeds or cuttings of the roots on any common soil.

1. *C.* arbore'scens *Lin.* The arborescent Colutea, *or Bladder Senna.*

*Identification.* Lin. Sp. 1045.; Dec. Astr., No. 1.; Dec. Prod., 2. p. 270.; Don's Mill., 2. p. 245.
*Synonyme.* *C.* hirsùta *Roth Fl. Germ.* 1. p. 305.
*Engravings.* N. Du Ham., 1. t. 22.; Schmidt Arb., t. 117.; Bot. Mag., t. 81.; and our *fig.* 400.

*Spec. Char., &c.* Leaflets elliptical, retuse. Peduncles bearing about 6 yellow flowers. Callosities of the standard short. Legumes closed. (*Dec. Prod.*) A rapid-growing shrub. Middle and South of Europe, Italy, and on Mount Vesuvius is found even on the ascent to the crater, where there are scarcely any other plants. Height 12 ft. to 14 ft. Introduced in 1570. Flowers yellow; June to August. Legume bladder-like, reddish; ripe in September.



400. Colùtea arboréscens.

The bladders, when pressed, explode with a crackling noise. On the Continent, the leaves have been recommended as a substitute for senna, and they are also said to afford a grateful food for cattle. The seeds, in doses of a drachm or two, are said to excite vomiting. In British gardens, the plant is chiefly valuable as a bulky fast-growing shrub, of the easiest culture, and fit for almost any situation.

2. *C.* (a.) crue'nta *Ait.* The bloody-*flowered* Colutea, *or Oriental Bladder Senna.*

*Identification.* Ait. Hort. Kew., 3. p. 55.; Dec. Astr., No. 3.; Don's Mill., 2. p 245.
*Synonymes.* *C.* orientàlis *Lam. Dict.* 1. p. 353., *Ill.* 624. f. 3., *N. Du Ham.* 1. t. 23.; *C.* sanguinea *Pall.*; *C.* áptera *Schmidt Arb.* t. 119.; *C.* hùmilis *Scop.*
*Engravings.* Lam. Ill., 624. f. 3., N. Du Ham., 1. t. 23.; Schmidt Arb., t. 119.; Krause, t. 105.; and our *fig.* 401.

*Spec. Char., &c.* Leaflets obovate, emarginate, glaucous. Peduncles bearing 4—5 flowers. Callosities of the standard obtuse, very small. Legumes opening at the tip. Corolla, in colour, between red and saffron-coloured, with a yellow spot at the base of the standard. (*Dec. Prod.*) A glaucous

401. Colùtea (a.) cruénta.

shrub. Archipelago, Georgia, and the Levant. Height 4 ft. to 8 ft. Introd. 1731. Flowers reddish copper-coloured; June and July. Legume reddish; ripe in August.

Resembles *C.* arboréscens, but of smaller dimensions, and with leaflets more glaucous, and more retuse.

♃ 3. *C.* (A.) ME'DIA *Willd.* The intermediate Colutea, *or Bladder Senna.*

*Identification.* Willd. Enum., 771.; Dec. Prod., 2. p. 270.; Don's Mill., 2. p. 245.
*Engravings.* Wats. Dend. Brit., t. 140.; and our *fig.* 402.

*Spec. Char., &c.* Leaflets obcordate, glaucescent. Peduncles usually 6-flowered. Legumes closed at the apex. Flowers orange-coloured. — (*Don's Mill.*)

402. *C.* (a.) mèdia.

A shrub rather larger than *C.* (A.) cruénta, and differing from it chiefly in having orange-coloured flowers. Perhaps, a hybrid between the two preceding sorts.

♃ 4 *C.* (A.) HALE'PPICA *Lam.* The Aleppo Colutea, *or Bladder Senna.*

*Identification.* Lam. Dict., 1. p. 353.; Ill., t. 624. f. 2.; Dec. Astr., No. 2.; Don's Mill., 2. p. 245.
*Synonymes.* *C.* Pocóck*ii* Ait. Hort. Kew. 3. p. 55, Schmidt Arb. t. 129.; *C.* istria *Mill. Dict.* No. 2. t. 100.; *C.* procúmbens *L'Hérit. Stirp. Nov.* 2. t. 42.
*Engravings.* Schmidt Arb., t. 120.; and our *fig.* 403.

*Spec. Char., &c.* Leaflets roundishly elliptical, very obtuse, mucronate. Peduncles bearing 3 yellow flowers. Callosities of the standard lengthened, ascending. Legumes closed. Smaller than *C.* arboréscens. (*Dec. Prod.*) A low shrub. Fields about Aleppo. Height 3 ft. to 6 ft. Introduced in 1752. Flowers yellow; May to October. Legume reddish; ripe Oct.

Closely resembling *C.* arboréscens, of which it appears to be a variety, but rather more tender in British gardens.

403. *C.* (a.) haléppica.

404. *C.* nepalénsis.

♃ 5. *C.* NEPALE'NSIS *Hook.* The Nepal Colutea, *or Bladder Senna.*

*Identification.* Hook. Bot. Mag., 2622.; Don's Mill., 2. p. 245.
*Engravings.* Hook. Bot. Mag., t. 2622.; and our *fig.* 404.

*Spec. Char., &c.* Leaflets roundish-elliptic, retuse. Racemes drooping, few-flowered. Callosities of standard papilliform. Legumes rather coriaceous, pubescent. (*Don's Mill.*) A branchy shrub. Nepal. Height 3 ft. to 10 ft. Flowers yellow; August and September. Legume reddish; ripe in October.

The leaflets are small, and, being more imperfectly developed than in any of the other kinds, give it a singular appearance.

## Genus XVII.

### ASTRA'GALUS *Dec.* The Milk Vetch. *Lin. Syst.* Diadélphia Decándria.

*Identification.* Dec. Astrag., No. 5.; Prod., 2. p. 291.; Don's Mill., 2. p. 253.
*Synonyme.* *A*strágalus sp. of Lin. and others; Astragale, *Fr.*; Tragant, *Ger.*; Astragalo, *Ital.*
*Derivation.* From *astragalos*, a vertebra; the seeds in the legumes of some species being squeezed into a squarish form, so as to look something like the joints of the backbone; or, perhaps, from *astēr*, a star, and *gala*, milk. It is also the name given to a shrub by Greek writers.

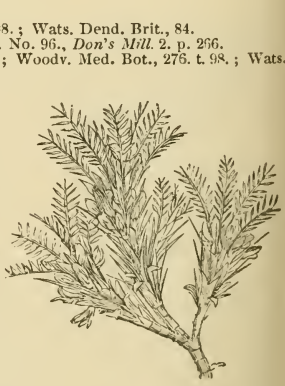
*Gen. Char.* *Calyx* 5-toothed. *Keel* obtuse. *Stamens* diadelphous. *Legume* bilocular or half-bilocular, from the upper suture being bent in so much. (*Don's Mill.*)

*Leaves* compound, alternate, stipulate, deciduous; pinnate: petioles permanent. *Flowers* in the only hardy ligneous species purplish or white. — Shrubs, low; natives of the South of Europe and Asia.

1. *A. T*ragaca'ntha *L.* The Goat's-Thorn Milk Vetch, *or Great Goat's Thorn.*

*Identification.* Lin. Sp., 1073.; Woodv. Med. Bot., 276. t. 98.; Wats. Dend. Brit., 84.
*Synonyme.* *A.* massiliénsis *Lam. Dict.* 1. p. 320., *Dec. Astr.* No. 96., *Don's Mill.* 2. p. 266.
*Engravings.* Pall. Astr., t. 4. f. 1, 2.; Duh. Arb., 2. t. 100.; Woodv. Med. Bot., 276. t. 98.; Wats. Dend. Brit., t. 84.; and our *fig.* 405.

*Spec. Char., &c.* Peduncles usually 4-flowered, about equal in length to the leaves. Calyxes cylindrical, with 5 short blunt teeth. Leaves with 9—11 pairs of elliptic hoary leaflets. (*Don's Mill.*) A low prickly glaucous shrub, with sub-persistent leaves, and persistent petioles. Marseilles and Narbonne, in sandy places, as well as Corsica and Mauritania. Height 6 in. to 1 ft. Introduced in 1640. Flowers purplish or white; May to July. Legumes tomentose, brown; ripe in September. General aspect whitish.



405. *Astrágalus Tragacántha.*

The flowers are disposed on axillary peduncles, so short as to prevent them from being at all conspicuous above the leaves. After the leaflets drop off, the petioles become indurated, so as to give the plant the appearance of being densely covered with spines. Propagated by seeds, which it sometimes ripens in England, or by cuttings. It requires a dry soil, and a sunny situation; and is well adapted for rock-work.

*Other ligneous Species of* A*strágalus.* — A. *altàicus* Lodd. Cab.; A. *aristàtus* L'Hérit. Stirp. 170., with yellow flowers, which is figured in Bot. Cab. t. 1278., and our *fig.* 406.; A. *brevifòlius*, with a purplish flower, figured in Bot. Cab. t. 1388., and our *fig.* 407.; and A. *massiliénsis* Lam., which is probably a variety of *A. T*ragacántha with white flowers instead of purplish

406. Astragalus aristatus.

407. Astragalus brevifolius.

ones, are in British collections; but, though technically ligneous, are usually treated as rock herbaceous plants.

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## Sect. III. *Hedysa'reæ.*

## Genus XVIII.

CORONI'LLA *Neck.* The Coronilla. *Lin. Syst.* Diadélphia Decándria.

*Identification.* Neck. Elem., No. 1319.; Lam. Ill., t. 630.; Dec. Prod., 2. p. 309.
*Synonyme.* Coronilla sp. of Lin. and others.
*Derivation.* From *corona*, a crown; in reference to the disposition of the flowers in crowns, or umbels, at the tops of the peduncles.

*Gen. Char.* *Calyx* campanulate, short, 5-toothed, the two superior teeth approximate, and joined together higher up than the rest. *Claws* of petals usually longer than the calyx. *Carina* acute. *Stamens* diadelphous. *Legume* nearly terete, slender, at length separating into oblong 1-seeded joints. *Seeds* ovate or cylindrical. (*Don's Mill.*)

*Leaves* compound, alternate, stipulate, deciduous; impari-pinnate. *Flowers* in axillary peduncles, bearing at their tops umbels of pedicellate flowers, usually yellow.—Shrubs, deciduous or sub-evergreen; natives of the South of Europe or Asia.

They are all highly ornamental, and most of them produce seeds in England, by which, or by cuttings, they are easily propagated in common soil.

### § 1. C. E'merus *L.* The Scorpion-Senna Coronilla.

*Identification.* Lin. Sp., 1046.; Dec Prod., 2. p. 309.; Don's Mill., 2. p. 274.
*Synonymes.* E'merus major *Mill. Icon.* t. 132. f. 1., and E. minor, f. 2.; C. pauciflora *Lam. Fl. Fr.*
*Engravings.* Bot. Mag., t. 445.; N. Du Ham., 4. t. 131.; and our *fig.* 408.

*Spec. Char., &c.* Shrubby, glabrous. Its leaves are attended by minute stipules, and have 5—7 obovate leaflets. Its flowers are yellow, disposed 3 upon a peduncle. The claws of the petals are thrice as long as the calyx. The legume is rather cylindrical than compressed, and its

408 Coronilla E'merus

joints separate slowly and unobviously, but they do separate. (*Dec. Prod.*) A bushy glabrous shrub. Middle and Southern Europe, in thickets and hedges. Height 4 ft. to 10 ft. Introduced in 1596. Flowers yellow; April to June. Legume brown; ripe in September.

Before the flowers are expanded, the corolla is partly red externally, mostly so towards the tips of the petals; and the mingling of the yellow flowers, with flower-buds more or less red, and the elegant foliage, produce a fine effect. It flourishes most in a sunny sheltered situation, and a dry soil. It bears clipping, and would form a beautiful garden hedge.

2. C. JU'NCEA *L.* The rushy-*branched* Coronilla.

*Identification.* Lin. Sp., 1047.; Dec. Prod., 2. p. 309.; Don's Mill., 2. p. 274.
*Engravings.* Bot. Reg., t. 820.; Bot. Cab., t. 235.; and our *fig.* 409.

*Spec. Char., &c.* Shrubby, glabrous. Branches rush-like, round, bearing but few leaves; the latter are attended by minute stipules, and have 3—7 leaflets, that are linear oblong, obtuse, and rather fleshy; the lowest leaflets being rather distant from the base of the petiole. The flowers are yellow, 5—7 in an umbel. The claws of the petals are scarcely longer than the calyx. The legume is rather compressed, and its joints separate obviously. (*Dec. Prod.*) An erect glaucous shrub. South of France. Height 2 ft. to 3 ft. Introduced in 1756. Flowers bright yellow; June and July. Legume brown; ripe in September.

409. C. júncea.

It deserves a place in collections, on account of the singularity of its rush-like slender branches, which, like those of *Spártium júnceum*, are partly destitute of leaves.

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## Sect. IV. *PHASEO'LEÆ.*

## GENUS XIX.

WISTA'R*IA* Nutt. THE WISTARIA. *Lin. Syst.* Diadélphia Decándria.

*Identification.* Nutt. Gen. Amer., 2. p. 115.; Dec. Prod., 2. p. 389.; Don's Mill., 2. p. 348.
*Synonymes.* Glycine sp. *L.*, Thyrsánthus *Elliot*, Kraúnh*ia* Rafin.
*Derivation.* Named in honour of *Caspar Wistar*, late Professor of Anatomy in the University of Pennsylvania. (*Don's Mill.*, ii. p. 348.) Nuttall first characterised and named this genus, from the American species, which he denominated W. speciòsa; but which DeCandolle has changed to W. frutéscens. In DeCandolle's *Prodromus*, and some other works, Wistàr*ia* is erroneously spelled Wistèr*ia*.

*Gen. Char.* *Calyx* campanulate, somewhat bilabiate, upper lip with two short teeth, lower one with 3 subulate teeth. *Corolla* papilionaceous. *Vexillum* bicallose. *Wings* conforming to the keel, which is 2-edged. *Stamens* diadelphous. Nectariferous tube girding the stipe of the ovary. *Legume* standing on a short stipe, coriaceous, 2-valved, 1-celled, rather torulose at the seeds. (*Don's Mill.*)

*Leaves* compound, opposite, exstipulate, deciduous; impari-pinnate. *Flowers* bluish purple, in terminal and axillary racemes.—Shrubs, deciduous, twining; natives of North America and China; of vigorous growth, forming, when in flower, some of the most splendid ornaments of British gardens.

The species are quite hardy, will grow in any soil, and are generally propagated by layers of the young shoots, which will root at every joint if laid down during summer as they grow. They may also be propagated by cuttings of the roots; or by seeds.

### ♃ 1. W. FRUTE'SCENS *Dec.* The shrubby Wistaria.

*Identification.* Dec. Prod., 2. p. 390.; Don's Mill., 2. p.348.
*Synonymes.* Glycine frutéscens *Lin. Sp.* 1067.; *A'pios* frutéscens *Pk. Fl. Am. Sept.* 2. p. 474.; Anónymos frutéscens *Walt. Fl. Car.* 186.; Wistàr*ia* speciósa *Nutt. Gen. Amer.* 2. p. 115.; Thyrsánthus frutéscens *Elliot Journ. Acad. Sci. Philad.*; Phaseolóides *Hort. Angl.* 55.; the Kidneybean Tree.
*Engravings.* Bot. Mag., t. 2103.; and our *fig.* 410.

410. Wistàr*ia* frutéscens.

*Spec. Char., &c.* Wings of the corolla each with two auricles. Ovary glabrous. Flowers odorous. (*Dec. Prod.*) An elegant deciduous climber. Virginia, Carolina, and the Illinois, in boggy places. Stem 20 ft. to 30 ft. Introd. 1724. Flowers bluish purple, sweet-scented, the standard having a greenish yellow spot at the base; July to September. Legume brown; ripe in October.

It is readily propagated by cuttings of the root and by layers, and forms a very ornamental climber, especially when trained against a wall.

### ♃ 2. W. CHINE'NSIS *Dec.* The Chinese Wistaria.

*Identification.* Dec. Prod., 2. p. 390.; Don's Mill., 2. p. 348.
*Synonymes.* Glycine chinénsis *Bot. Mag.* t. 2083.; G. sinénsis *Bot. Reg.* t. 650.; Wistàr*ia* Consequàn*a* Loudon Gard. Mag. vol. ii. p. 422., and Hort. Brit.
*Engravings.* Swt. Brit. Fl.-Gard., t. 211.; Bot. Mag., t. 2083.; Bot. Reg., t. 650.; Bot. Cab., t. 773.; and our *fig.* 411.

*Spec. Char., &c.* Wings of the corolla each with one auricle. Ovary villose. Flowers large. (*Dec. Prod.*) A vigorous-growing deciduous twiner. China. Stem 50 ft. to 120 ft. Introduced in 1816. Flowers pale bluish purple; May and June, and sometimes producing a second crop of flowers in August. Legume ?.

411. Wistàr*ia* chinénsis

The flowers are larger than those of W. frutéscens: they are disposed in longer and looser racemes, and are somewhat paler in colour. On established plants they are produced in great abundance; but they have not yet been succeeded by legumes in England. This plant may truly be considered the most magnificent of all our hardy deciduous climbers. It will grow wherever the common laburnum will flourish; but, as its flowers are somewhat more tender than those of that tree, they are more liable to be injured by frosts in very late springs. A plant in the Hort. Soc. Garden, against a wall, extends its branches above 100 ft. on each side of the main stem; one at Coughton Hall covers 905 superficial feet of walling.

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## Sect. V. *Cassie'æ.*

## Genus XX.

### GLEDI'TSCHI*A* L. The Gleditschia. *Lin. Syst.* Polygàmia Dicœ'cia.

*Identification.* Lin. Gen., 1159.; Lam. Ill., p. 857.; Dec. Prod., 2. p. 479; Don's Mill, 2. p. 428.
*Synonymes.* Acàcia sp. *Pluk.*; Févier, *Fr.*; Gleditschie, *Ger.*; Gleditsia, *Ital.*

*Derivation.* In honour of *Got lieb Gleditsch*, of Leipsic, once a professor at Berlin, and defender of Linnæus against Siegesbeck; author of *Methodus Fungorum* (1753), *Systema Plantarum a Staminum situ* (1764), and many other smaller works.

*Gen. Char.* *Flowers* unisexual from abortion, or hermaphrodite. *Calyx* of 3—4—5 equal sepals, which are connected together at the base into a cupule. *Petals* equal in number to the sepals, rising from the tube of the calyx. *Stamens* equal in number to the sepals. *Style* short. *Stigma* pubescent above. *Legume* continuous, furnished with more or less pulp. *Seeds* compressed. (*Don's Mill.*)

*Leaves* compound, abruptly pinnate, and bipinnate, on the same tree; or, rarely, by the coalition of the leaflets, almost simple, alternate, stipulate, deciduous. *Flowers* greenish, in spikes.—Trees, deciduous, of the 1st, 2d, and 3d ranks; natives of North America or China. Branchlets supra-axillary, and often converted into branched spines. Decaying leaves yellow. Naked young wood purplish or brownish green.

The species are of easy culture in good free soil; and, in Britain, generally propagated by imported seeds, or grafting. The species appear to be in a state of great confusion in British gardens; and, judging from the trees in the Hort. Soc. Garden, and in the arboretum of Messrs. Loddiges, we should conjecture that there are, probably, not more than two species, the American and the Chinese. The Chinese species is distinguished by its trunk being more spiny than its branches.

♆ 1. G. TRIACA'NTHOS *Lin.* The three-thorned Gleditschia, *or Honey Locust.*

*Identification.* Lin. Sp., 1509.; Dec. Prod., 2. p. 479.; Don's Mill., 2. p. 428.
*Synonymes.* G. triacánthos var. α polyspérma *Mart. Mill.*; G. melíloba *Walt*; G. spinòsa *Du Ham.*; *Acàcia* triacánthos *Hort.*; *Acàcia* americàna *Pluk.*; Février d'Amérique, *Fr.*; Fava americana, *Ital.*; Thorny Acacia, Sweet Locust, *United States*; Carouge à Miel, *Canada.*
*Engravings.* Michx. fil. Arb., 2. p. 164. t. 10.; Wats. Dend. Brit., t. 138.; the plates of this species in Arb. Brit., 1st edit., vol. v.; and our *fig.* 412.

*Spec. Char., &c.* Spines simple or trifid; stout, at the very base compressed, in the upper part cylindrical, but tapered. Leaflets linear-oblong. Legumes flattish, rather crooked, many-seeded, and more than ten times as long as broad. (*Dec. Prod.*) A large tree. Carolina and Virginia. Height 50 ft. to 80 ft. Introduced in 1700. Flowers greenish; June and July. Legume brown; ripe in October. Decaying leaves yellow. Naked young wood purplish brown.

♆ *G. t.* 2 *inérmis* Dec., G. læ'vis *Hort.* (Dec. Leg. Mém., 2. t. 22. fig. 109.; Catesb. Carol., 1. t. 43.; Pluk. Alm., t. 123. fig. 3.; and the plates of this variety in Arb. Brit., 1st edit., vol. v.), has the stem and branches not spiny, or but very sparingly so.

♆ *G. t.* 3 *brachycárpa.* G. brachycárpa *Pursh*, G. triacánthos var. β *Michx.* — Leaflets oblong obtuse. Spines thick, short, not rarely 3 together. Legumes oblong, short.

The trunk and branches, when the tree is young, are covered with large prickles, which, though they are not ligneous, become hard, and remain on for several years, and offer a formidable defence. These prickles are not only produced by the young wood, but occasionally protrude themselves from the trunk, even when the tree is of considerable bulk and age. In general, the trunk presents a twisted appearance, and the branches proceed from it rather horizontally than in an upright direction. The pinnated foliage is particularly elegant, and of an agreeable light shining green: it appears late in spring, the trees in the neighbourhood of London sometimes not being fully clothed till the middle or end of June; and it begins to turn yellow, and drop off, early in autumn. The flowers are inconspicuous; the male flowers being in the form of catkin-like racemes of nearly the same colour as the leaves. Some trees in the grounds at Syon have ripened seeds, the pods containing which, being 1 ft. to 2 ft. in length, and remaining on the trees after the leaves are off, have a singular appearance. These crooked pendulous pods are of a reddish

412. Gleditschia triacánthos.

brown colour; they contain hard, smooth, brown seeds, enveloped in a pulpy substance, which, for about a month after the maturity of the seeds, is very sweet, but after a few weeks becomes extremely sour. The rate of growth of this tree, for the first 15 or 20 years, is generally about the average of a foot a year; but in favourable situations it will grow at double that rate. In the garden of the Hort. Soc., and in the arboretum of the Messrs. Loddiges, plants 10 years planted were, in 1835, from 20 ft. to 25 ft. in height. The wood of this tree, when dry, weighs at the rate of 52 lb. the cubic foot: it is very hard, and splits with great facility, resembling in this and other respects the wood of the robinia; but its grain is coarser, and its pores more open. In Britain, this, and all the kinds of the genus, can only be considered as ornamental trees; but in that character they hold the first rank; their delicate acacia-like foliage, and the singularly varied, graceful, and picturesque forms assumed by the tree, more especially when young or middle-aged, together with the singular feature afforded by its spines, will always recommend it in ornamental plantations. It requires a deep, rich, free soil, and a situation not exposed to high winds; and it requires the South of England or France to ripen the seeds. The species is always propagated by seeds imported from America, or from France or Italy. The plants are best transplanted to where they are finally to remain when quite young; as they make but few fibrous roots, and these take, for the most part, a descending direction. The variety G. t. inermis can only be insured by grafting on the species. In general, however, abundance of plants without spines may be selected from beds of seedlings of G. triacánthos.

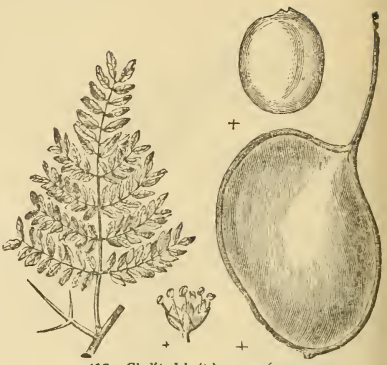
ϒ 2. G. (T.) MONOSPE'RMA *Walt.* The one-seeded Gleditschia, *or Water Locust.*

*Identification.* Walt. Car., 254.; Dec. Prod., 2. p. 479.; Don's Mill., 2. p. 428.
*Synonymes.* G. carolinénsis *Lam. Dict.* 2. p. 464.; G. aquática *Marsh.*; G. triacántha *Gært. Fruct.* 2. p. 149.
*Engravings.* Mill. Icon., 5.; and our *fig.* 413.; in which the male flower, the pod, and the seed, are of the natural size.

*Spec. Char., &c.* Spines slender, not rarely trifid, few. Leaflets ovate-oblong, acute. Legumes flattish, roundish, 1-seeded. (*Dec. Prod.*) A tree of the largest size. Native of Carolina, Florida, and the Illinois, in moist woods. Height 60 ft. to 80 ft. Introduced in 1723. Flowers greenish; June and July. Legume not seen in England.

Closely resembles the honey locust, from which, in England, where neither of them ripens seeds, it is almost impossible to distinguish it. The bark,

though smooth when the tree is young, yet cracks and scales off when the tree grows old, as in G. triacánthos. The leaves, Michaux says, differ from those of G. triacánthos, in being a little smaller in all their proportions. The branches are armed with thorns, which are also less numerous, and somewhat smaller than those of G. triacánthos. The tree is treated in all respects like G. triacánthos; of which it has, till lately, been considered only a variety. It is raised in the nurseries from imported seed; but whether the plants really turn out perfectly distinct, with respect to the form of their fruit, is uncertain; from their not having yet, as far as we know, fruited in England.



413. Gleditschia (t.) monospérma.

♃ 3. G. SINE'NSIS *Lam.* The Chinese Gleditschia.

*Identification.* Lam. Dict., 2. p. 465.; Dec. Prod., 2. p. 479.; Don's Mill., 2. p. 428.
*Synonymes.* G. hórrida *Willd. Sp.* 4. p. 1098.; Fèvier de la Chine, *Fr.*
*Engravings.* Dec. Légum. Mém., l. t. 1.; the plate of this species in Arb. Brit., 1st edit., vol. v.

*Spec. Char., &c.* Spines stout, conical; those on the branches simple or branched; those on the stem grouped and branched. The leaflets ovate-elliptical, obtuse. Legumes compressed, long. The spines in this species are axillary, not distant from the axil. (*Dec. Prod.*) A middle-sized tree. China. Height 30 ft. to 50 ft. Introduced in 1774. Flowers greenish; June and July. Legume not seen in England.

414. Gleditschia s. inérmis.

*Varieties.*

♃ *G. s.* 2 *inérmis* N. Du Ham., G. japónica *Lodd. Cat.*, G. javánica *Lam.* (see the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 414.), differs from G. sinénsis in being without spines, of much less vigorous growth, and in having the foliage of a much deeper green. It seems a very desirable variety for small gardens.

♃ *G. s.* 3 *màjor* Hort., G. hórrida màjor *Lodd. Cat.*, seems scarcely to differ from the species.

♃ *G. s.* 4 *nàna* Hort., G. h. nàna in Hort. Soc. Gard. (see the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our *fig* 415.), is a tree of somewhat lower growth than the species, but scarcely, as it appears to us, worth keeping distinct.

♃ *G. s.* 5 *purpùrea* Hort., G. h. purpùrea *Lodd. Cat.* (see the plate in Arb. Brit., 1st edit., vol. v.; and our *fig.* 416.), is a small tree of compact upright growth, very suitable for gardens of limited extent.

*Other Varieties of G. sinénsis.*—In Loddiges's arboretum there is a plant

415. Gleditschia s. nàna

marked *G. chinénsis* (Potts), which was imported from China by the Hort. Soc. It is, at present, a low bush, and may, perhaps, prove something distinct. There were also, in 1835, in the Hort. Soc. Garden, some plants without names, apparently belonging to this species; but, as we have already observed, the genus is in great confusion, and nothing perfectly satisfactory can be stated respecting it.

The spines, which are very strong and branchy, are more abundant on the trunk than on the branches, and are frequently found in bundles.

416. Gleditschia s. purpùrea.

The leaves are bipinnate, and the leaflets are elliptic obtuse, notched on the edges, smooth, shining, and much larger than those of any other species. (*Desf. Arb.*, ii. p. 248.) The pods are rarely above 6 in. long. The tree stands the cold better than the honey locust, and has ripened its fruit in Paris, in the Jardin des Plantes, and in the nursery of M. Cels. (*Dict. des Eaux et des Forêts*, vol. ii. p. 150.)

♆ 4. G. (s.) MACRACA'NTHA *Desf.* The long-spined Gleditschia.

*Identification.* Desf. Arb., 2. p. 246.; Don's Mill., 2. p. 428.
*Synonymes.* G. fèrox *Baudr.*; Fèvier à grosses E'pines, *Fr.*
*Engraving.* The plate of this species in Arb. Brit., 1st edit., vol. v.

*Spec. Char., &c.* Prickles strong, branchy, numerous. Leaflets lanceolate, somewhat rigid, notched, dentated. Pods elongated. (*Desf. Arb.*) A middle-sized tree, with a prickly trunk. China?. Height 40 ft. to 50 ft. Flowers greenish; June and July

The prickles are axillary and large. The leaves are twice winged; the leaflets large, coriaceous, dark green, and shining on the upper surface. The young shoots are covered with extremely short hairs, and are of a purplish brown colour. On the whole, it bears a close resemblance to G. sinénsis, of which it is, probably, only a variety. It is very hardy; and Desfontaines says that it fruits freely in France. The fruit ripens in the autumn; and the pods are long, pendulous, swelled, and rather cylindrical. They are filled with a sharp acrid pulp, somewhat resembling that of tamarinds, but the emanations from which, when inhaled, occasion sneezing.

♆ 5. G. (s.) FE'ROX *Desf.* The ferocious-*prickled* Gleditschia.

*Identification.* Desf. Arb., 2. p. 247.; Don's Mill., 2. p. 428.
*Synonymes.* G. orientàlis *Bosc*; Fèvier hérissé, *Fr.*
*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* Prickles large, robust, much compressed, trifid. Leaflets lanceolate, notched. (*Desf. Arb.*)

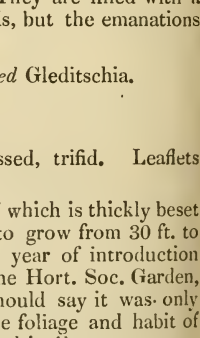
A middle-sized branching deciduous tree, the trunk of which is thickly beset with strong branchy prickles, and which is supposed to grow from 30 ft. to 50 ft. in height; but of which the native country, and year of introduction into Britain, are unknown. Judging from the plants in the Hort. Soc. Garden, and those in the arboretum of Messrs. Loddiges, we should say it was only a variety of G. sinénsis; though Desfontaines states the foliage and habit of growth to be somewhat different. It has not yet flowered in Europe.

♆ 6. G. CA'SPICA *Desf.* The Caspian Gleditschia.

*Identification.* Desf. Arb., 2. p. 247.; Don's Mill., 2. p. 428.
*Synonyme.* G. caspiàna *Bosc.*
*Engraving* Our *fig.* 417.

*Spec. Char., &c.* Prickles slender, trifid, compressed. Leaflets elliptic-lanceolate, obtuse. (*Desf. Arb.*) A middle-sized tree Persia, and found also near the Caspian Sea. Height 30 ft. to 40 ft. Introduced in 1822.

Nothing is known of its flowers and fruit; but it strongly resembles G. sinénsis (of which it is, probably, only a variety) in its leaves, general appearance, and habit.


417. G. cáspica.

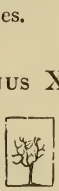
*Variety.*

♆ *G. c.* 2 *subviré.cens* Hort., Fèvier verdâtre, *Fr.*, is mentioned in the *Bon Jardinier* for 1836, as a variety of this species.

*Other Sorts of Gledítschia.*—Every modification of the species of this genus is so interesting, both in point of the elegance of its foliage, and the singularity of its prickles, that new varieties have been eagerly sought after by cultivators; and the genus seems particularly favourable to this desire, from the tendency of seedling plants to sport. Hence there are several names in collections, of

which it is difficult to say any thing satisfactory in the present young and immature state of the plants. In the Hort. Soc. Garden, there were in 1837 *G. micracántha*, *G.* Bòqui, and *G. præcox*; and in Messrs. Loddiges's arboretum were plants marked *G. aquática*, which are evidently the same as G. monospérma, *G. orientàlis*, evidently G. fèrox, *G. chinénsis* (already mentioned); and some young plants without names.

## Genus XXI.



GYMNO'CLADUS *Lam.* The Gymnocladus. *Lin. Syst.* Diœ'cia Decándria.

*Identification.* Lam. Dict., 1. p. 733.; Ill., t. 823.; Dec. Prod., 2. p. 479.
*Derivation.* From *gumnos*, naked, and *klados*, a branch; from the naked appearance of the branches during winter, when they seem, unless perhaps at the points of the shoots, totally devoid of buds.

*Gen. Char. Flowers* diœcious from abortion. *Calyx* tubular, 5-cleft. *Petals* 5, equal, oblong, exserted from the tube. *Stamens* 10, enclosed. *Legume* oblong, thick, filled with pulp inside. (*Don's Mill.*)

*Leaves* compound, alternate, stipulate, deciduous; bipinnate. *Flowers* in terminal racemes, white. — A tree, deciduous, with upright branches and inconspicuous buds; native of North America.

### ✝ 1. G. canade'nsis *Lam.* The Canada Gymnocladus, *or Kentucky Coffee Tree.*

*Identification.* Lam. Dict., 1. p. 733., and Ill., t. 823.; Michx. Fl. Bor. Amer., 2. p. 241.; Dec. Prod., 2. p. 480.; Don's Mill., 2. p. 429.
*Synonymes.* Guilandina dioica *Lin. Sp.* 546.; Hyperanthèra dioica *Vahl Symb.* 1. p. 31., *Duh. Arb.* 1. t. 103.; Nicker Tree, Stump Tree, *United States*; Bonduc, Chiquier, *Fr.*; Chicot, *Canadian*; Canadischer Schusserbaum, *Ger.*
*Engravings.* Reich. Mag., t. 40.; Duh. Arb., t. 103.; our plates of this tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 418.

*Spec. Char., &c.* Branches blunt at the tip, bipinnate leaves, flowers in racemes, and whitish petals. The leaf has 4—7 pinnæ; the lower of which consist each of but a single leaflet, the rest each of 6—8 pairs of leaflets. (*Dec Prod.*) A singular tree. Canada. Height 30 ft. to 60 ft. Introduced in 1748. Flowers white; May to July. Decaying leaves yellow. Naked young wood of a mealy white, without any appearance of buds.

The branches have almost always an upright direction; and the appearance of the head, in the winter season, is remarkable, from being fastigiate, and from the points of the branches being few, and thick and blunt, as compared with those of almost every other tree. They are also wholly without the appearance of buds; and this latter circumstance, connected with the former, gives the tree, during winter, the appearance of being dead; and hence the Canadian name of chicot, or stump tree. The leaves, on young thriving trees, are 3 ft. long, and 20 in. wide; but, on trees nearly full grown, they are not half that size. The leaflets are of a dull bluish green, and the branches of the petioles are somewhat of a violet colour. It is very hardy, and flowers freely in the neighbourhood of London, but does not produce pods. The wood is hard, compact, strong, tough, and of a fine rose colour. In America, it is used both in cabinet-making and carpentry, and, like the wood of the robinia, it has the remarkable property of rapidly converting its sap-wood into heart-wood; so that a trunk 6 in. in diameter has not more than six lines of sap-wood, and may, consequently, be almost entirely employed for useful purposes. The seeds were, at one time, roasted and ground as a substitute for coffee in Kentucky and Tennessee; but their use in this way has been long since discontinued. The pods, preserved like those of the tamarind (to which

418. Gymnócladus canadénsis.

this genus is nearly allied), are said to be wholesome, and slightly aperient. In Britain, the only use of the tree is for ornamental purposes; and, considered as an object of curiosity and beauty, no collection ought to be without it. A rich, deep, free soil is essential to the thriving of this tree; and such a soil is never met with naturally in exposed situations. The tree is generally propagated by imported seeds; but it will grow freely from cuttings of the roots, care being taken in planting to keep that end upwards which is naturally so.

## Genus XXII.

### CE'RCIS *L.* The Judas Tree. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Lin. Gen., No. 510.; Dec. Prod., 2. p. 518.; Don's Mill., 2. p. 463.
*Synonymes.* Siliquástrum *Tourn. Inst.* t. 414., *Mœnch Meth.*; Gainier, *Fr.*; Judasbaum, *Ger.*; Albero de Giuda, *Ital.*
*Derivation.* From *kerkis*, a shuttlecock, the name given by Theophrastus to this tree.

*Gen. Char.* *Calyx* urceolate at the base and gibbous, bluntly 5-toothed at the apex. *Petals* 5, unguiculate, all distinct, disposed in a papilionaceous manner; the wings or side petals the largest. *Stamens* 10, free, unequal. *Ovary* on a short stipe. *Legume* oblong, slender, compressed, 1-celled, many-seeded, somewhat winged on the seminiferous suture. *Seeds* obovate. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous; heart-shaped at the base, many-nerved, rising after the flowers have decayed. *Flowers* in 1-flowered pedicels, rising from the trunk and branches in fascicles.—Trees, deciduous, of the third rank; natives of Europe, or North America. Decaying leaves yellowish purple. Propagated by seeds or grafting.

### ✝ 1. *C. Siliqua'strum L.* The *common* Judas Tree

*Identification.* Lin. Sp., 534.; Dec. Prod., 2. p. 518.; Don's Mill., 2. p. 463.
*Synonymes.* Siliquástrum orbiculàtum *Mœnch Meth.*; Love Tree; Gainier commun, Arbre de Judée, *Fr.*; Arbol d'Amor, *Span.*; Judasbaum, *Ger.*
*Engravings.* N. Du Ham., t. 7.; Bot. Mag., t. 1138.; the plates of this species in Arb. Brit., 1st edit., vol. v.; and our *fig.* 419.

*Spec. Char., &c.* Leaves very obtuse, and wholly glabrous. (*Dec. Prod.*) A low tree. South of Europe, in Greece, in Asiatic Turkey, and more especially in Judea. Height 20 ft. to 30 ft. Introduced in 1596. Flowers purplish pink; May. Legume brown; ripe in September. Naked young wood purplish, with small white spots.

*Varieties.*

- C. S. 2 *parviflòrum* Dec.—A shrub; its branches spotted with white, its flowers smaller by half than those of the species. A native of Bokhara.
- ✝ C. S. 3 *flòre álbido.*—Flowers whitish. H. S.
- ✝ C. S. 4 *ròseu.*—A seedling, raised from foreign seeds, which has flowered in the Botanic Garden at Kew; has numerous flowers, which are brighter, and a shade darker, than those of the species; and they also appear about a fortnight later; but it is, perhaps, hardly worth noticing as a variety.

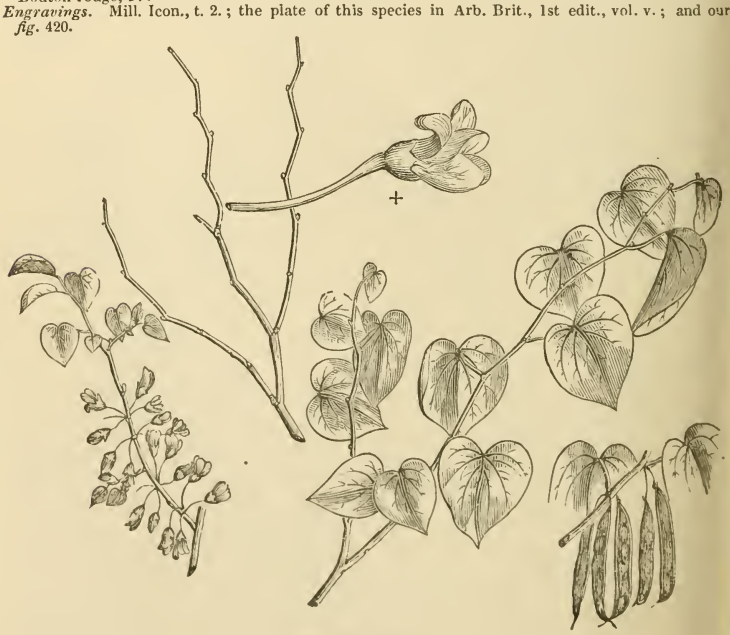
419. Cércis Siliquástrum

The common Judas tree, in the South of Europe, forms a handsome low tree, with a flat spreading head, in the form of a parasol; and it is a singularly

beautiful object in spring, especially when it is covered with its numerous bright purplish pink flowers, which appear before the leaves, and are produced not only from the young wood, but from wood of 6 or 8 years growth, and even from the trunk. The leaves are not liable to be attacked by insects. The flowers are succeeded by flat, thin, brown pods, nearly 6 in. in length, which remain on the tree all the year, and give it a very singular appearance in the winter season. The rate of growth is about 18 in. a year, for the first 10 years. The wood is very hard, and agreeably veined, or rather blotched or waved, with black, green, and yellow spots, on a grey ground. It takes a beautiful polish, and weighs nearly 48 lb. to the cubic foot. The flowers, which have an agreeable acid taste, are mixed with salads, or fried with batter, as fritters; and the flower-buds are pickled in vinegar. In British gardens, the tree grows about the same height, and flowers about the same time, as the laburnum, the Guelder rose, and the hawthorn, and enters into beautiful combination with these and other trees. The foliage is hardly less beautiful and remarkable than the flowers; the leaves being of a pale bluish green on the upper surface; and of a sea-green underneath, and of a cordate reniform shape, apparently consisting of two leaflets joined together; which circumstance, combined with others, brings the genus in close alliance with that of Bauhínia. Like most of the Leguminàceæ, this tree prefers a deep, free, sandy soil, rich rather than poor; and it will only thrive, and become a handsome tree, in sheltered situations. In the northern parts of the island, it requires to be planted against a wall; and few ornamental trees better deserve such a situation. The species is propagated by seeds, and the varieties by grafting. The seeds are sown on heat early in spring, and come up the same season; and the plants will produce flowers in three or four years.

### ♃ 2. *C.* CANADE'NSIS *L.* The Canada Judas Tree.

*Identification.* Lin. Sp., 534.; Dec. Prod., 2. p. 518.; Don's Mill., 2. p. 463.
*Synonymes.* Siliquàstrum cordàtum *Mœnch Meth.*; red Bird Tree, *Amer.*; Gainier de Canada, Bouton rouge, *Fr.*
*Engravings.* Mill. Icon., t. 2.; the plate of this species in Arb. Brit., 1st edit., vol. v.; and our *fig.* 420.



420. Cércis canadénsis.

*Spec. Char., &c.* Leaves acuminate, villose beneath at the axils of the veins. As compared with *C. Siliquástrum*, its flowers are of a paler rose colour, the legume is on a longer pedicel, and tipped with a longer style. A low tree. Canada to Virginia. (*Dec. Prod.*) Height 10 ft. to 20 ft. Introd. 1730. Flowers red; May and June.; Legume brown; ripe in August.

*Variety.*

ϒ C. *c. pubéscens* Ph. — Leaves pubescent on the under surface. (*Dec.*)

This tree bears a general resemblance to the preceding species; but it is more slender and smaller in all its parts; and it seldom rises higher than 20 feet. It is at once distinguished from *C. Siliquástrum* by its leaves being heart-shaped and pointed; they are also much thinner, more veined, and of a lighter green; and the flowers are generally produced in smaller numbers than in the other species. The flowers are used by the French Canadians in salads and pickles, and the young branches to dye wool of a nankeen colour. The wood resembles that of the other species. Propagated by imported seeds, and considered more tender than *C. Siliquástrum*.

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## Order XXVI. *ROSA'CEÆ.*

The term *Rosàceæ* has been applied to this order, because all the species belonging to it agree more or less with the genus *Ròsa*, in essential characters. It includes many genera belonging to the Linnæan class Icosándria.

*Ord. Char.* *Flowers* regular. *Calyx*, in most cases, with 5 lobes, the odd one posterior to the axis of inflorescence. *Petals* and *stamens* arising from the calyx. *Stamens*, for the most part, numerous. *Ovaries* many, several, or solitary; each of one cell that includes, in most cases, 1 ovule; in some, 1 to many ovules. *Style* lateral or terminal.

*Leaves* simple, or pinnately divided, alternate, in nearly all stipulate. *Flowers* showy, with numerous stamens. *Fruit*, in many of the genera, edible. —Trees and shrubs, mostly deciduous; natives of Europe, Asia, and America.

The ligneous species which constitute this order include the finest flowering shrub in the world, the rose; and the trees which produce the most useful and agreeable fruits of temperate climates, viz. the apple, the pear, the plum, the cherry, the apricot, the peach, and the nectarine. The plants are, for the most part, deciduous low trees or shrubs, all producing flowers more or less showy; and the greater number fruits which are edible. They are chiefly natives of Europe and Asia; but several of them are also found in North America, and some in South America, and the North of Africa. The fruit-bearing species, and the rose, have followed man from the earliest period of civilisation, and are, perhaps, better known to mankind in general than any other ligneous plants. The medical properties of several of the species are remarkable, from the circumstance of their yielding the prussic acid; while others produce a gum nearly allied to the gum Arabic, which indicates a degree of affinity between this order and Leguminàceæ. The bark of some species, as of *Cérasus virginiàna*, is used, in North America, as a febrifuge; and that of others, as the capollin cherry (*Cérasus Capóllin*), for tanning, in Mexico. The leaves of *Cratæ'gus Oxyacántha*, *Prùnus spinòsa*, *Cérasus sylvéstris*, and *Ròsa rubiginòsa*, have been used as a substitute for tea, or for adulterating tea. The leaves and bark of the spiræas are said to be at once astringent and emetic. There are two characteristics of this order, with reference to its cultivation, which are of great importance to the gardener: the first is, the liability of almost all the species to sport, and produce varieties differing, in many cases, more from one another, than they differ from other species; and the second is, that they are remarkably subject to

the attacks of insects and diseases. They almost all require a free loamy soil, not overcharged with moisture, and rich rather than poor; and, while all the species are increased by seeds, which, for the most part, are produced freely in Britain, or by cuttings of the roots, almost all the varieties are best increased by grafting or budding; and not, as in some other orders, with equal ease by cuttings of the shoots, or by layers.

With reference to landscape-gardening, all the rosaceous trees have three properties which deserve to be kept constantly in view by the improver of grounds: 1st, they never attain a large size; 2d, they attain their natural size and shape in a very few years, in good soil not requiring more than from 10 to 20 years; and 3d, they sooner take the character of old trees than the trees of any other natural order of ligneous plants. A few exceptions may be taken from different orders, such as the common field maple, the common laburnum, &c.; but we know of no natural order, in which, like the *Ro*sàceæ, all the trees are low or middle-sized, and all take the character of age while comparatively young. Hence their value in laying out small places, where the object is to make a new place appear old, or a small place appear large, and at the same time to combine character of form with beautiful blossoms in spring, and showy (*C*ratæ'gus, Cotoneáster, and *Amelánchier*) or useful (*P*ỳrus and *P*rùnus) fruit in autumn.

The genera are included by DeCandolle and G. Don in five tribes; and the following are their names and distinctions: —

Sect. I. *A*MYGDA'LEÆ *Juss.*

*Sect. Char.* Fruit a drupe; the nut 2-ovuled, 1—2-seeded. Style terminal. Calyx deciduous. Leaves feather-nerved, undivided, serrate, with the lower serratures or the petioles glanded. Stipules not attached to the petiole. Kernel containing more or less of hydrocyanic acid: chiefly fruit trees.

*A*MY'GDALUS *Tourn.* Covering of nut not fleshy; nut even, or perforated Young leaves folded flatwise. Flowers almost sessile, solitary or twin, protruded before the leaves.

*P*E'RSICA *Tourn.* Covering of nut very fleshy; nut wrinkled. The characters of the other parts described under *A*mýgdalus are the same in *P*ersica.

*A*RMENI'ACA *Tourn.* Covering of nut fleshy; nut furrowed at both edges, in the other parts even. Young leaves with their edges rolled inwards. Flowers almost sessile, solitary or a few together, protruded before the leaves.

*P*RU'NUS *Tourn.* Covering of nut fleshy; nut indistinctly furrowed at the edges, in the other parts even. Young leaves with the edges rolled inwards. Flowers upon pedicels, in groups resembling umbels, and produced before or after the leaves.

*C*E'RASUS *Juss.* Nut subglobose, even, its covering fleshy. Young leaves folded flatwise. Flowers upon pedicels, either in groups resembling umbels, and produced before the leaves, or in racemes terminal to the shoots, protruded along with them.

Sect. II. *S*PIRÆE'Æ *Dec.*

*Sect. Char.* Fruit of 5, or fewer, capsular carpels, which are distinct from the calyx (which is persistent in *S*piræ'a, and, perhaps, in the other genera), and, in most cases, from each other: each contains 1—6 seeds. Style terminal. Low deciduous shrubs.

PU'RSH*IA* Dec. Stamens about 20. Carpels 1—2, ovate-oblong.

KE'*RRIA* Dec. Stamens about 20. Carpels 5—8, distinct.

*S*PIRÆ'A *L.* Stamens 10—50. Carpels 1 to several, distinct; stipitate; each includes 2—6 seeds, affixed to the inner suture.

Sect. III. POTENTI'LLEÆ *Juss.* (Synon. Dryàdeæ *Vent.*)

*Sect. Char.* Fruit an aggregation of carpels; their integuments dry or

succulent; the carpels distinct from one another, and from the calyx, which is persistent, and surrounds them, and, in many, is subtended by as many bracteas as it has lobes; the bracteas alternate with the lobes. Style proceeding from a little below the tip of the carpel. Leaves, in most cases, pinnately divided. Stipules attached to the petiole. Shrubs bearing fruit, or ornamental.

*Ru'bus L.* Integuments of carpels juicy.
Potenti'lla *Nestl.* Integuments of carpels dry.

Sect. IV. *Ro'seæ Dec.*

*Sect. Char.* Fruit a hip; that is, with the tube of the calyx fleshy, of a pitcher shape, contracted at the mouth; and including an aggregation of carpels attached to its inner face. Style proceeding from the inner side of the carpel. Shrubs eminently ornamental.

*Ro'sa Tourn.* Leaf impari-pinnate. Stipules attached to the petiole. Prickles simple.
Lo'wea Lindl. Leaf simple. Stipules none. Prickles usually compound.

Sect. V. Po'meæ *Lindl.*

*Sect. Char.* Fruit a pome; that is, with the tube of the calyx become very fleshy, and including, and connate with, the carpels. Carpels normally 5, with gristly or bony walls, including 1—2 seeds; in *Cydònia*, several. Habit spiny or not; leaves, in most cases, undivided, in some pinnate. Stipules not connate with the petiole. Ornamental low trees, or large shrubs, with showy flowers, in some genera spiny, and in others bearing some of our best hardy kitchen and dessert fruits.

*Cratæ'gus Lindl.* Carpels 1—5 prismatic nuts with bony shells, each including 1 seed. Leaves angled or toothed; in most cases deciduous. Flowers in terminal corymbs. Spiny shrubs or low trees.
Photi'nia *Lindl.* Carpels 2. Petals reflexed. Evergreen. Flowers in terminal panicles. Leaves simple, leathery, serrated or entire. In P. integrifòlia the ovaries are 3, and each includes 2 ovules.
Cotonea'ster *Medik.* Carpels 2—3; ovules 2 in each cell. Leaves simple, entire, woolly beneath. Flowers in lateral spreading corymbs.
*Amela'nchier* Medik. Ovaries 5, each divided by a partition; ovules 1 in each cell. Ripe pome including 3—5 carpels. Petals lanceolate. Small trees. Leaves simple, serrate, deciduous. Flowers in racemes.
*Me'spilus Lindl.* Carpels 2—5 compressed nuts with bony shells, each including 1 seed. Leaves lanceolate, serrulate, deciduous. Flowers large, subsessile, subsolitary.
*Py'rus Lindl.* Carpels 5, or 2—5. Seeds 2 in each carpel. Leaves simple or pinnate, deciduous. Flowers in spreading terminal cymes or corymbs.
*Cydo'nia Tourn.* Carpels 5, each including many seeds.

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## Sect. I. *Amygda'leæ Juss.*

### Genus I.

*AMY'GDALUS Tourn.* The Almond Tree *Lin. Syst.* Icosándria Monogýnia.

*Identification* Tourn. Inst., t. 402.; Dec. Prod., 2. p. 330.; Don's Mill., 2. p. 482.

*Synonymes.* Amygdalóphora *Neck.*; Amandier, *Fr.*; Mandelbaum, *Ger.*; Mandorlo, *Ital.*
*Derivation.* From *amussō*, to lacerate, in reference to the fissured shell of the nut. Martinius suspects that it comes from a Hebrew word which signifies vigilant; because its early flowers announce the return of spring.

*Gen. Char.* *Drupe* clothed with velvety pubescence, having a dry rind, which separates irregularly, containing a pitted or smooth putamen or nut. (*Don's Mill.*)

*Leaves* simple, conduplicate when young, alternate, stipulate, deciduous. *Flowers* nearly sessile, usually pink or rose coloured, rising either singly or by pairs from the scaly buds, earlier than the leaves. — Shrubs or trees of the middle size, deciduous. Natives of the North of Africa, and the mountains of Asia; also of Russia, and the Levant.

The fruit-bearing species are cultivated in the Middle and South of Europe and the Levant, and are propagated chiefly by grafting; and the others by grafting, layers, suckers, or cuttings of the root. The almond was included by Linnæus in the same genus with the peach and nectarine, of both of which it is, doubtless, the parent, as trees have been found with almonds in a state of transition to peaches, and with both peaches and nectarines on the same branch.

1. *A.* NA'NA *L.* The dwarf, *or shrubby*, Almond.

*Identification.* Lin. Mant., 396.; Dec. Prod., 2. p. 530.; Don's Mill., 2. p. 482.
*Synonymes.* Prùnus inérmis *Gmel.*; *A.* nàna var. α vulgàris *Dec.*; Amandier nain, *Fr.*; Zwerchemandel, *Ger.*; Peschino della China, *Ital.*
*Engravings.* Bot. Mag., t. 161.; N. Du Ham., 4. t. 30.; and our *figs.* 422, 423.

*Spec. Char., &c.* Leaves oblong-linear, tapered at the base, serrated, glabrous; Flowers solitary, rose-coloured. Calyx cylindrically bell-shaped. Fruit of the same shape as that of *A.* commùnis, but much smaller. (*Dec. Prod.*) A deciduous low shrub. Calmuc Tartary, very frequent on the banks of the Volga, and about Odessa. Height 2 ft. to 3 ft. Introduced in 1683. Flowers rose coloured; March and April.

*Varieties.*

A. *n.* 2 *geórgica* Dec. *A.* geórgica *Desf. Arb.* 2. p. 221., and *Lodd. Cat.* — It differs from the species in having the lobes of the calyx lanceolate, and as long as its tube; and the styles only tomentose at the base, being scarcely so there, and not protruded. A native of Georgia, which has been cultivated in the Geneva Botanic Garden.

A. *n.* 3 *campéstris* Ser. *A.* campéstris *Besser Enum.* p. 46. No. 1425., *Hort. Fl. Aust.* 2. p. 2., and *Lodd. Cat.*; *A.* Besseriàna Schott in *Cat. Hort. Vindob.* 1818, and *Lodd. Cat.* — Leaves broader. Lobes of the calyx as long as the tube. Petals narrower, longer, and white. Styles tomentose at the base. The form of the nut, according to Besser, is various. Supposed to be a native of the South of Podolia. (*Dec. Prod.*) This variety is in the Hort. Soc. Garden, where it was raised from seeds received from Dr. Fischer of Petersburg.

A. *n.* 4 *sibírica* Lodd. Cat., and Lodd. Bot. Cab. 1599., and our *fig.* 421., is extant in some British botanical collections, where it is an upright shrub, about 6 ft. high, with wand-like shoots, clothed with fine, long, willow-like, glossy, serrate leaves; on account of which, and its upright habit of growth, the latter being different from that of all the other species and varieties of almond, it is valuable in every collection where variety of character is desired. H. S.

421. *A.* n. sibirica.

All the different forms of the dwarf almond are low shrubs, seldom exceeding 2 or 3 feet in height. The leaves bear a general resemblance to those of some

422. *A.* nàna.

of the species of willow, but are of a darker and more shining green, at least in the original species. The stems are not of long duration; but the plant throws up abundance of travelling suckers, by which it is continued naturally, and also propagated. It is common through all the plains of Russia, from 55° N. lat. to the south of the empire. In British gardens it is valuable on account of its early flowering, the gracefulness of the slender twigs, on which its flowers are produced before the leaves appear, and of its easy culture in any dry soil. Its fruit resembles that of *A.* commùnis, but is much smaller, and rarely seen in England. The plant, which is usually called the dwarf double-blossomed almond in British gardens, is *Cérasus* japónica flòre plèno, or, as it is frequently named in the nurseries, *Amýgdalus* pùmila.

423. *A.* nàna.

♃ 2. *A.* INCA'NA *Pall.* The hoary *dwarf* Almond.

*Identification.* Pall. Ross., 1. p. 13.; Smith Fl. Græc., t. 497.; Don's Miller, 2. p. 482.; Lindl. in Bot. Reg., 1839, t. 58.
*Synonymes.* *A.* nàna var. incàna *Guldenstäd*, and *Arb. Brit.* 1st edit. vol. ii. p. 674.; *A.* tomentósula *Lodd. Cat.*
*Engravings.* Pall. Ross., 1. t. 7.; Flor. Græc., t. 477.; Bot. Reg., 1839, t. 58.; and our *fig.* 424.

*Spec. Char., &c.* Leaves obovate serrated, clothed with white tomentum beneath. Flowers solitary. Drupe compressed, pubescent. (*Don's Mill.*) A low deciduous shrub. Caucasus and the Levant, between Smyrna and Bursa. Height 2 ft. to 3 ft. Introduced in 1815. Flowers red; March and April.

Readily known from *A.* nàna by its leaves being covered with hoariness beneath. Increased by budding on the common plum.

424. *A.* incàna.

♃ 3. *A.* COMMU'NIS *L.* The common Almond Tree.

*Identification.* Lin. Sp., 677.; Dec. Prod., 2. p. 530.; Don's Mill., 2. p. 482.
*Engravings.* N. Du Ham., 4. t. 29.; and the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 425.

*Spec. Char., &c.* Leaves oblong-lanceolate, serrulate. Flowers solitary. Calyx of a bell-shape. Fruit compressed, and rather egg shaped. (*Dec. Prod.*) A middle-sized deciduous tree. Mauritania, and in the mountainous parts of Asia. Height 20 ft. to 30 ft. Introduced in 1538. Flowers white or rose-coloured; March and April. Drupe brownish; ripe in October. In fine seasons the fruit ripens on standards as far north as Derby, and on walls at Edinburgh.

*Varieties.*

♃ A. *c.* 1 *amàra* Dec. *The bitter Almond.* Amandier amer, *Fr.*; gemeine Mandelbaum, *Ger.* — Flowers large. Petals pale pink, with a tinge of rose colour at the base. Styles nearly as long as the stamens, and tomentose in the lower part. Seeds bitter. There are two forms of the bitter almond; one with a hard shell, and the other with a brittle one. The tree is cultivated in the South of France, in Austria, in Italy, in Greece, &c., for its fruit, which is preferred for some purposes in medicine and in domestic economy to that of the sweet almond, particularly for giving a flavour; and for stocks for grafting the other varieties on, and the peach, apricot, and even the plum. Bitter almonds are generally mixed with sweet ones, in very small proportions, for making blancmange, &c.

425. *Amygdalus communis.*

♈ A. *c.* 2 *dúlcis* Dec., Lam. Ill. t. 430. *The sweet Almond.* Amandier à petits Fruits, Amande douce, *Fr.*; susse Mandel, *Ger.* — Leaves grey-green. Flowers protruded earlier than the leaves. Styles much longer than the stamens. Fruit ovate-compressed, acuminate. Shell hard. Kernel sweet-flavoured. Cultivated in the same places as the preceding sort, and generally propagated by grafting standard high on the bitter almond, or any strong-growing seedling almonds, in order to make sure of the fruit being sweet.

♈ A. *c.* 3 *flòre plèno* Baum. Cat. has double flowers.

♈ A. *c.* 4 *fòliis variegàtis* Baum. Cat. has variegated leaves.

♈ A. *c.* 5 *frágilis* Ser., Dec. Prod. 2. p. 531. *A.* frágilis *Hell.* 1. p. 500.; Amandier des Dames, *N. Du Ham.* 4. p. 113., *Noisette Jard. Fruit.* p. 7.; Coque molle, Amandier à Coque tendre, *Fr.*; Abellan, *Provence.*—Flowers protruded at the same time as the leaves, and of a pale rose colour. Petals broader, and deeply emarginate. Leaves shorter; the petioles thick. Fruit acuminate; shell soft; kernel sweet-flavoured. Cultivated for its fruit.

♈ A. *c.* 6 *macrocárpa* Ser., Dec. Prod. 2. p. 531. Amandier à gros Fruits, *N. Du Ham.* 4. p. 112., *Noisette Jard. Fruit.* p. 7.; Amandier Sultane, Amandier des Dames, Amandier Pistache, *Fr.*— Leaves broader, acuminate, scarcely grey. Peduncles short, turgid. Flowers of a very pale rose colour, large, protruded before the leaves. Petals broadly obcordate, waved. Fruit large, umbilicate at the base, acuminate at the tip; shell hard. There are two subvarieties, one with the fruit rather smaller, called, commonly, in France, Amandier Sultane; and another, with the fruit still smaller, called there Amandier Pistache; the kernels of both of which are considered remarkably delicate, and are preferred for the table. The flowers of this variety are always produced earlier than those of any other; and the kernels of the fruit are always sweet. In British gardens, the *A.* c. macrocárpa has much the largest flowers of any of the varieties. It is a

vigorous large tree, of rapid growth, somewhat more fastigiate than the species.

† A. c. 7 *persicoïdes* Ser., Dec. Prod. 2. p. 531 Amandier-Pêcher, *N. Du Ham.* 4. p. 114., *Noisette Jard. Fruit.* p 7. — Leaves similar to those of the peach tree. Fruit ovate, obtuse ; its husk slightly succulent ; the shell of a yellowish dark colour, and the kernel sweet-flavoured. Du Hamel has stated that its fruits vary upon the same branch, from ovate, obtuse, with the husk rather fleshy, to ovate, compressed, acuminate, and the husk dry. Cultivated in France and Italy for its fruit, but rarely found in British gardens.

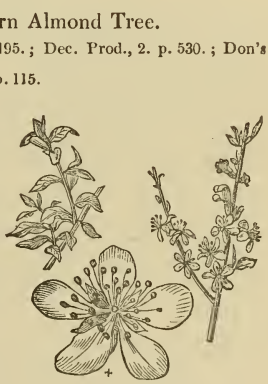
*Other Varieties.* The almond, considered as a fruit tree, has given rise to some other varieties, which will be found treated of at length in French works on gardening, in the *Nouveau Du Hamel*, and the *Nouveau Cours d'Agriculture*.

There are several varieties of the almond in cultivation on the Continent for their fruit; and two or three in this country, partly for the same purpose, but chiefly for their flowers. The common almond, in a wild state, is found sometimes with the kernels bitter, and at other times with them sweet; in the same manner as the Quércus hispánica, which, in Spain, though it generally bears sweet and edible acorns, yet sometimes produces only such as are bitter. For this reason, in the case of the almond, instead of giving one form as the species, we have followed DeCandolle, and described both the bitter and the sweet almond separately, either of which may be considered as the species, and classed them with the varieties.

### 4. *A.* ORIENTA`LIS *Ait.* The Eastern Almond Tree.

*Identification.* Ait. Hort. Kew., ed. 1. 1. p. 162., ed. 2. 3. p. 195. ; Dec. Prod., 2. p. 530. ; Don's Mill., 2. p. 482.
*Synonyme.* *A.* argéntea *Lam. Dict.* 1. p. 103., *N. Du Ham.* 3. p. 115.
*Engravings.* Lodd. Bot. Cat., t. 1137. ; and our *fig.* 426.

*Spec. Char., &c.* Imperfectly evergreen. Branches and leaves clothed with a silvery tomentum; petiole of the leaf short, the disk lanceolate and entire. Flowers rose-coloured, and rather longer than those of *A.* nàna. Calyx cylindrically bell-shaped. Fruit tipped with a point. (*Dec. Prod.*) A tall shrub or low tree. Levant. Height 8 ft. to 10 ft.; and, according to Bosc, 15 ft. to 20 ft. Introduced in 1756. Flowers rose-coloured; March and April.


426. *A.* orientàlis.

Very striking, from the hoary, or rather silvery, appearance of its leaves ; and it makes a handsome plant when budded standard high on the common almond or the plum. It flowers much less freely than the common almond; notwithstanding which, it well deserves a place in collections, on account of its fine silvery foliage.

## GENUS II.

PE'RSICA *Tourn.* THE PEACH TREE. *Lin. Syst.* Icosándria Monogýnia

*Identification.* Tourn. Inst., t. 400. ; Mill. Dict. ; Dec. Fl. Fr., 487. ; Don's Mill., 2. p. 483.
*Synonymes.* Amýgdalus sp. of Lin. and Juss. ; Trichocárpus *Neck. Elem.* No. 718. ; Pêcher, *Fr.* Pfirschenbaum, *Ger.* ; Pesco, *Ital.*
*Derivation.* So named from the peach coming originally from *Persia.*

*Gen. Char.* *Drupe* fleshy, with a glabrous or velvety apicarp, and having the putamen wrinkled from irregular furrows. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous; conduplicate when young.

*Flowers* almost sessile, solitary, or twin, rising from the scaly buds earlier than the leaves.—Tree, deciduous, beneath the middle size, and not of long duration. Persia.

The peach and the nectarine are by some botanists made distinct species; but there can be no doubt of their being only varieties of one kind, which kind is itself nothing more than an improved or fleshy almond; the almond being to the peach and nectarine what the crab is to the apple, and the sloe to the plum.

♆ 1. *P.* VULGA'RIS *Mill.* The common Peach Tree.

*Identification.* Mill. Dict., No. 1.; Dec. Prod., 2. p. 531.; Don's Mill., 2. p. 483.
*Synonymes.* Amygdalus Persica *Lin. Sp.* 677.: Pêche duveteuse, *Fr.*; Pfirsche, *Ger.*
*Engravings.* N. Du Ham., 1. 2—8.; Nois. Jard. Fruit. Icon.; the plate of this tree in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 427.

427. *Pérsica vulgàris.*

*Spec. Char., &c.* Fruit clothed with velvety tomentum. A deciduous tree Persia. Height 20 ft. to 30 ft. Cultivated in 1562, or probably long before. Flowers rose-coloured; March and April. Fruit red and yellow; ripe in September.

*Varieties.*

- ♆ P. *v.* 1, *the freestone common Peach*, Pêche, *Fr.*, has the flesh of the fruit parting from the shell of the nut (the stone).
- ♆ P. *v.* 2, *the clingstone common Peach*, Pavie, *Fr.*, has the flesh of the fruit adhering to the shell of the nut.
- ♆ P. *v.* 3 *flòre plèno* Hort.—Flowers double.
- ♆ P. *v.* 4 *álba* Lindl.—Flowers white. A hardy ornamental shrub, with the habit of an almond. Its fruit has little merit.
- ♆ P. *v.* 5 *fòliis variegàtis* Hort.—Leaves variegated.
- ♆ P. *v.* 6 *compréssa* Hort., the flat Peach of China (Hort. Trans. iv. t. 19.; and our *fig.* 428.), is chiefly remarkable for the form of its fruit, and for being nearly evergreen in its leaves. In the Hort. Soc. Garden, against a wall, it keeps growing throughout the winter, when the weather is not too severe.

428. *P. v.* compréssa.

♆ 2. *P.* (v.) LÆ'VIS *Dec.* The smooth-*skinned* Peach, *or Nectarine Tree.*

*Identification.* Dec. Fl. Fr., 4. p. 487.; Don's Miller, 2. p. 493.
*Synonymes.* Amýgdalus Pérsica *Lam. Dict.*; *A.* Pérsica Nectarina *Ait. Hort. Kew.*; Pêche lisse, Brugnon, *Fr.*; Pesco noce, *Ital.*
*Engravings.* Nois. Jard. Fruit., t. 20. f. 2, 3. t. 21. f. 3, 4.

*Spec. Char., &c.* Fruit smooth. A deciduous tree. Persia. Height 15 ft. to 20 ft. Cultivated in 1562, or probably long before. Flowers rose-coloured; March and April. Fruit red and yellow; ripe in September.

*Varieties.*

♆ P. (*v*) *l.* 1, *the freestone Nectarine* (with the fruit parting from the nut). Pêche lisse, *Fr.* — The Elruge is the best variety.

♆ P. (*v.*) *l.* 2, *the clingstone Nectarine* (with the flesh adhering to the nut). Brugnon, *Fr.* — The Orange is the best variety.

The different varieties of peach and nectarine, when treated as standard trees in the open garden, assume the general form and character of the almond; but, as they are more delicate, in consequence of being farther removed from their aboriginal state, they are of slower growth, form trees of less size, and are of shorter duration. The nectarine, as a standard in the open garden, forms a smaller and more delicate tree than the peach; and the double-flowered peach is of less vigorous growth than most of the single-flowered varieties, but very ornamental.

## GENUS III.

ARMENI'ACA *Tourn.* THE APRICOT. *Lin. Syst.* Icosándria Monogýnia.

*Identification.* Tourn. Inst., t. 399.; Juss. Gen., 341.; Dec. Fl. Fr., 4. p. 485., Prod. 2. p. 531., Don's Mill., 2. p. 495.
*Synonymes.* Prùnus sp. of Lin. and others; Abricotier, *Fr.*; Aprikosenbaum, *Ger.*; Albicocco, *Ital.*
*Derivation.* The genus is named *Armenìaca*, from the apricot being originally from *Armenia.* The popular English name was originally præcocia, from the Arabic, *berkoche;* whence the Tuscan bacoche, or albicocco; and the English, abricot, or apricock, eventually corrupted into apricot. Some persons derive the name from *præcox*, from this fruit ripening sooner than most others.

*Gen. Char.* *Drupe* ovate globose, fleshy, covered with a velvety skin, containing a nut or stone, which is acute at one end, and blunt at the other, with a furrow on both sides; the rest smooth, not wrinkled. (*Don's Mill.*) *Leaves* simple, alternate, stipulate, deciduous; when young, convolute. *Flowers* almost sessile, solitary, or few together, rising before the leaves from scaly buds.—Trees, low, deciduous, or shrubs; natives of Europe and Asia.

The common apricot is a fruit tree in general cultivation throughout the temperate regions of the globe, distinguished at first sight from the almond, peach, and nectarine, by its heart-shaped, smooth, shining leaves, and white flowers. There are several wild varieties, bearing flowers of different shades of pink, chiefly cultivated as ornamental. The great beauty of both the wild and the cultivated sorts of apricot is, that they come into bloom in Britain before almost every other tree; the Siberian apricot flowering a fortnight, or more, before the common sloe or almond.

♆ 1. *A.* VULGA'RIS *Lam.* The common Apricot Tree.

*Identification.* Lam. Dict., 1. p. 2.; Dec. Prod., 2. p. 532.; Don's Mill., 2. p. 495.
*Synonyme.* Prùnus Armenìaca *Lin. Sp.* 679.; Albicocco americano, *Ital.*
*Engravings.* N. Du Ham., 1. t. 49.; the plate in Arb. Brit., 1st edit., vol. v.; and our *fig.* 431.

*Spec. Char., &c.* Flowers sessile. Leaves heart-shaped or ovate. (*Dec. Prod.*) A middle-sized tree. Armenia, Caucasus, the Himalayas, China, &c. Height 20 ft. to 30 ft. Cultivated in 1548. Flowers pinkish white; February and March. Drupe orange and red; ripe in August and Sept. Decaying leaves reddish yellow. Naked young wood smooth, purplish.

*Varieties.*

♆ A. *v.* 1 *ovalifòlia* Ser. Abricot Angoumois, A. précoce, A. blanc, *Fr* (N. Du Ham., 5. t. 50. f. 6.; and our *fig.* 429.)—Leaves oval; fruit small.

429. *A.* v. ovalifòlia.

♆ A. *v.* 2 *cordifòlia* Ser. (N. Du Ham., 5. p. 167. t. 49.; and our *fig.* 430.)—Leaves heart-shaped, broad. Fruit larger.

430. *A.* v cordifòlia

♆ A. *v.* 3 *fòliis variegàtis* Hort.—Leaves variegated. Flowers double. The Breda variety is generally that which has variegated leaves in British gardens.

♆ A. *v.* 4 *flòre plèno* Hort.—Grossier says that the Chinese have a great many varieties of double-blossomed apricots, which they plant on little mounts.

Very few trees attain the appearance of maturity so soon as the apricot; a standard 10 or 12 years planted, in good loamy rich soil, will grow to the height of 20 ft., with a head 25 ft. in diameter, presenting all the appearance

431. *Armeniaca vulgaris.*

of a tree of 20 or 30 years' growth, or of a tree arrived at maturity. The best variety for producing fruit, as a standard, is the Breda apricot. It is also a very handsome-growing plant, and its blossom buds, before they are expanded, are of a most beautiful and brilliant scarlet.

### ♆ 2. *A.* DASYCA'RPA *Pers.* The rough-fruited Apricot Tree.

*Identification.* Pers. Syn., 2. p. 36.; Dec. Prod., 2. p. 532.; Don's Mill., 2. p. 497.
*Synonymes.* *A.* atropurpùrea *Lois.* in *N. Du Ham.* 5. p. 172.; *P*rùnus dasycárpa *Ehrh. Beitr.* 6. p. 90.; *P. A*rmeniaca nigra *Desf. Cat.* ed. 2. p. 206.; the black Apricot.
*Engravings.* N. Du Ham., 5. t. 51. f. 1.; Lodd. Bot. Cab., t. 1250.; and our *figs.* 432, 433.

*Spec. Char., &c.* Leaves ovate, acuminate, doubly serrate. Petioles glanded. Flowers upon thread-shaped pedicels. In the flowers of a plant in the Geneva Botanic Garden, the calyx was purple, and 6-lobed; the petals were 6; and the stamens 24. (*Dec. Prod.*) A tree with a twisted trunk, resembling the common apricot, but smaller. Levant ?. Height 10 ft. to 15 ft. Introduced in 1800. Flowers white; April. Drupe purple or black; ripe in August and September.

432. *A.* dasycárpa.

433. *A* dasycárpa.

434 *A.* d. persicifòlia.

*Variety.*

ϒ A. *d.* 2 *persicifòlia* Lois. *A. p*ersicifòlia *Don's Mill.*, ii. p. 498. Abricot noir à Feuilles de Pêcher, *Fr.* (N. Du Ham., 5. p. 172. t. 52. f. 1.; and our *fig.* 434.)—Leaves ovate and short, or lanceolate, with small lobes. Flesh of the fruit red, variegated with pale yellow. In the *Nouveau Du Hamel*, it is stated to be a very slight variety, which can only be continued by budding.

The rough-fruited apricot merits cultivation for its flowers, which are generally white, but which, in this country, from the earliness of their appearance, are not often succeeded by fruit, unless the tree is planted against a wall, where it can be protected by netting from the spring frosts.

435. *A*rmeniàca (v.) sibírica.

ϒ 3. *A.* (v.) SIBI'RICA *Pers.* The Siberian Apricot Tree.

*dentification.* Pers. Syn., 2. p. 36.; Dec. Prod., 2. p. 532.; Don's Mill., 2. p. 498.
*ynonyme.* Prùnus sibírica *Lin. Sp.* 179.
*ngravings.* Ammann Stirp. Ruth., 272. t. 29.; Pall. Fl. Ross., 1. t. 8.; and our plate in Arb. Brit., 1st edit., vol. v.; and our *fig.* 435.

*Spec. Char., &c.* Leaves ovate acuminate, of the form of those of the beech. The petioles long and glandless. Fruit small. A native of mountainous districts in the most remote parts of Siberia. Persoon has stated that it varies with leaves linear-lanceolate. (*Dec. Prod.*) A low tree, having the general appearance of the common apricot, but smaller in all its parts. Dahuria, on mountains, growing upon the face of perpendicular rocks exposed to the sun. Height 6 ft. to 8 ft.; in England 8 ft. to 20 ft. Introduced in 1788. Flowers rose-coloured; May. Drupe ?.

This tree, on the mountains of Dahuria, does not attain a greater height than that of a man; but it has a trunk the thickness of the wrist, a rough and black bark, and hard wood. It flowers about the same time as the *Rhododéndron* dáùricum; growing on the south sides of the mountains, while the latter grows on the north sides. When both these plants are in flower, Pallas observes, the north sides of the mountains appear of a purple colour, and the south of a rose colour. (*Fl. Ross.*, i. p. 13.) In British gardens, the Siberian apricot forms a tree of nearly the same height as the common apricot, of which it appears to us to be the wild form.

✱ 4. *A.* (v.) BRIGANTI'ACA *Pers.* The Briançon Apricot Tree.

*Identification.* Pers. Syn., 2. p. 36.; Dec. Prod., 2. p. 532.; Don's Mill., 2. p. 498.
*Synonyme.* *Prùnus* brigantìaca *Vill. Dauph.* 3. p. 535., *Dec. Fl. Fr.* No. 3789., *Lois.* in *N. Du Ham.* 5. p. 185.
*Engravings.* N. Du Ham., 5. t. 59.; and our *fig.* 436.

*Spec. Char., &c.* Leaves nearly heart-shaped, toothed with numerous sharp subimbricate teeth. Flowers in groups, almost sessile, scarcely protruded before the leaves. (*Dec. Prod.*) A low tree. Dauphiné, in only one locality, and in another in Piedmont, where an oil, called huile de marmotte, has for a long time been expressed from the seeds. Height in British gardens 14 ft. to 15 ft. in 10 or 12 years; in its native habitats, 6 ft. to 8 ft. Introduced in 1819. Flowers white or pink; March and April. Drupe ?.

Seringe suggested that this kind may be the same as *A.* sibírica, and we think it not unlikely to be only another variety of the common apricot in its wild state, with toothed leaves.

436. *A.* (v.) brigantìaca.

*Other Species of Armenìaca.*—*A.* pedunculàta *Led.* has been raised in the Hort. Soc. Garden, from seeds received under this name from Dr. Ledebour.

## GENUS IV.

PRU'NUS *Tourn.* THE PLUM. *Lin. Syst.* Icosándria Monogýnia.

*Identification.* Tourn. Inst., t. 358.; Dec. Prod., 2. p. 532.; Don's Mill., 2. 498.
*Synonymes.* Prunóphora *Neck. Elem.* No. 719.; *Prùnus* sp. of Lin. and others; Pruno, *Ital.*
*Derivation.* Said to be a word of Asiatic origin; the wild plant, according to Galen, being called *proumnos* in Asia. The Greek name for the plum is *prounē*: it occurs in Theophrastus.

*Gen. Char.* *Drupe* ovate or oblong, fleshy, quite glabrous, covered with a glaucous bloom; containing a compressed nut or putamen, which is acute at both ends, and a little furrowed on the margin, the rest smooth. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous; convolute when young. *Flowers* usually disposed in umbellate fascicles, solitary on the pedicels, rising generally before the leaves.—Trees or shrubs; natives of Europe, Asia, and North America.

Many of the species are spiny in a wild state; most of them bear edible fruits; and all of them have showy blossoms. In British gardens, they are chiefly propagated by grafting, but some of them by layers; and they will grow in any soil that is tolerably free, and not overcharged with moisture, but a calcareous soil is found best. The epidermis of the bark of the plum, as well as that of the cherry, and perhaps that of some of the other genera of Amygdàleæ, is readily divisible transversely, and may frequently be seen divided in this manner into rings on the tree.

♆ 1. *P.* SPINO'SA *L.* The spiny Plum Tree, *or common Sloe Thorn.*

*Identification.* Lin. Sp., 3. 681.; Dec. Prod., 2. p. 532.; Don's Mill., 2. p. 498.,
*Synonymes.* *P.* sylvéstris *Fuch. Hist.* p. 404., *Ray Syn.* p. 462.; Blackthorn; Prunier épineux, Prunellier, Épine noire, or Mère-du-Bois, *Fr.*; Schleadorn, or Schlen Pflaum, *Ger.*; Prugno, or Prunello, *Ital.*
*Engravings.* Vahl Fl. Dan., t. 926.; the plate in Arb. Brit., 1st edit., vol. v.; and our *fig.* 437.
*Derivation.* The name of Mère-du-Bois is applied to the sloe thorn in France, in the neighbourhood of Montargis, because it has been remarked there, that, when it was established on the margins of woods, its underground shoots, and the suckers which sprang up from them, had a constant tendency to extend the wood over the adjoining fields.

*Spec. Char., &c.* Branches spiny. Leaves obovate, elliptical, or ovate; downy beneath, doubly and sharply toothed. Flowers produced before the leaves or with them, white, and solitary. Calyx campanulate; with lobes blunt, and longer than the tube. Fruit globose; the flesh austere. (*Dec. Prod.*) A low tree or shrub. Europe from Upsal to Naples, and the West of Asia and North of Africa. Height 10 ft. to 15 ft. Flowers white; March and April. Drupe black; ripe in October.

*Varieties.*

- ♆ P. *s.* 1 *vulgàris* Ser. *P.* spinòsa *Lois.* (N. Du Ham., 5. p. 185. t. 54. f. 1.) — Leaves obovate-elliptical. Fruit dark purple. This may be considered as the normal form of the species.
- ♆ P. *s.* 2 *fòliis variegàtis* Ser. — Found wild; but a plant of no beauty.
- ♆ P. *s.* 3 *microcárpa* Wallr. (Exs. Cent. 1. No. 45.) — Leaves elliptic, narrow, bluntish. Fruit smaller than that of the species.
- ♆ P. *s.* 4 *macrocárpa* Wallr. (Exs. Cent. 1. No. 45.) — Leaves obovate, bluntish. Fruit large, dark purple. This has been found wild in Germany; but Seringe doubts whether it be not identical with *P.* doméstica Juliàna, or with *P.* insitítia.
- ♆ P. *s.* 5 *ovàta* Ser. (Blackw. Herb., t. 494.) — Leaves ovate, roundish.
- ♆ P. *s.* 6 *flòre plèno.* — This is a very beautiful variety, said to be in cultivation, and highly prized, in China and Japan; and also found wild some years ago at Tarascon. The flowers are white, and are produced in such abundance as to entirely cover the branches.

The sloe, or blackthorn, is much more frequently seen as a large spiny shrub, than as a tree; but, when the suckers are removed from it, and all the strength of the plant is allowed to go into one stem, it forms a small scrubby tree of the most characteristic kind. The stems of the sloe differ from those of the hawthorn, in growing to the height of 3 or 4 feet before they branch off. The bark is black, whence the name of blackthorn; and the leaves are dark green. The roots are creeping, and, in every soil and situation, throw up numerous suckers; so much so, that a single plant, in a favourable soil, would cover an acre of ground in a very few years. In hedges, in Britain, it is seldom seen above 20 ft. in height; but in woods and in parks, as single trees, we have seen it above 30 ft. high: for example, in Eastwell Park, in Kent. The wood is hard, and in colour resembles that of the peach, though without its beauty: it takes a fine polish; but it is so apt to crack, that little use can be made of it, except for handles for tools, teeth for hay-rakes, swingles for flails, and walking-sticks. The wood weighs, when dry, nearly 52 lb. per cubic foot. The branches, from being less spreading than those of the common hawthorn, make better dead hedges than those of that species; and, for the same reason, they are particularly well adapted for forming guards to the stems of trees

437. *Prùnus spinòsa.*

planted in grass fields or in parks, to protect them from cattle. They are in general use for this purpose in France. They are also used as a substitute for stones and tiles in draining; and, formed into faggots, they are sold for heating bakers' ovens, and for burning lime or chalk in kilns, &c. The living plant cannot be recommended for hedges, on account of the rambling habit of its roots, and the numerous suckers they throw up; and because it is apt to get naked below, from the tendency of the shoots to grow upright and without branches. These upright shoots make excellent walking-sticks, which, accordingly, throughout Europe, are more frequently taken from this tree than from any other. Leaves of the sloe, dried, are considered to form the best substitute for Chinese tea which has yet been tried in Europe; and they have been extensively used for the adulteration of that article. The juice of the ripe fruit is said to enter largely into the manufacture of the cheaper kinds of port wine; and, when properly fermented, it makes a wine strongly resembling new port. In planting groups and masses in parks, by the addition of a few plants of the sloe, a degree of intricacy may be given sooner and more effectively, than by the use of the common thorn; but, at the same time, the sloe produces a degree of wildness from its numerous suckers, and the want of control which they indicate, which is not displayed by any of the species of *C*ratæ'gus, which do not throw up suckers. For producing wildness and intricacy, therefore, in park scenery, the sloe is of great value, and its effect is much heightened by the addition of the common furze or the broom. The sloe prefers a strong calcareous loam. It may be propagated freely by suckers, or by seeds: the latter should be gathered in October, when the fruit is dead ripe, mixed with sand, and turned over two or three times in the course of the winter; and, being sown in February, they will come up in the month of May.

♈ 2. *P.* INSITI'TIA *L.* The engrafted Plum Tree, *or Bullace Plum.*

*Identification.* Lin. Sp., 680.; Dec. Prod., 2. p. 532.; Don's Mill., 2. p. 498.
*Synonymes.* *P.* sylvêstris præ'cox áltior *Tourn.*; *P.* sylvéstris major *Ray*; Prunier sauvage, *Fr.*; Alfatous, *in Dauphiny*; Kirschen Pflaume, *Ger.*
*Engravings.* Eng. Bot., t. 841.; Hayne Abbild., t. 65.; the plate in Arb. Brit., 1st edit., vol. v.; and our *fig.* 438.

*Spec. Char., &c.* Branches becoming spiny. Flowers in pairs. Leaves ovate or lanceolate; villose beneath, not flat. Fruit roundish. (*Dec. Prod.*) A low tree. England, Germany, and the South of France, and also Barbary. Height 10 ft. to 20 ft. Flowers white; March and April. Drupe black; ripe in October.

*Varieties.*

♈ P. *i.* 1 *frúctu nìgro* Hort. The black-fruited, or common, Bullace.
♈ P. *i.* 2 *frúctu lùteo-álbo* Hort.—Fruit yellowish-white.

ϒ P. *i.* 3 *frúctu rùbro* Hort. — Fruit red.
ϒ P. *i.* 4 *flòre plèno* Descemet in *Mém. de la Russie Méridionale*, 1. p. 63. — Flowers double.

The fruit, which is globular, and usually black, is sometimes yellowish or waxy, with a red tint, and sometimes red; it is also so much less austere than the sloe, as to make excellent pies and puddings, and a very good preserve.

438. *Prùnus insitítia.*

The fruit of this plum in Provence is called prune sibarelle, because it is impossible to whistle after having eaten it, from its sourness. The wood, the branches, the fruit, and the entire plant are used, throughout France, for the same purposes as that of the sloe.

### ϒ 3. *P.* DOME'STICA *L.* The domestic *cultivated* Plum Tree.

*Identification.* Lin. Sp., 680.; Dec. Prod., 2. p. 533.; Don's Mill., 2. p. 499.
*Synonymes.* *P.* sativa *Fuchs* and *Ray*; Prunier domestique, *Fr.*; gemeine Pflaume, *Ger.*; Susino domestico, *Ital.*
*Engravings.* Wood. Med. Bot., t. 85.; E. Bot., t. 1783.; and our *fig.* 439.

439. *Prùnus domésticɑ.*

*Spec. Char., &c.* Branches spineless. Flowers mostly solitary. Leaves lanceolate-ovate, concave on the surface, not flat. (*Dec. Prod.*) A low tree. South of Europe, on hills; in England, found sometimes in hedges, but never truly wild. Height 15 ft. to 20 ft. Flowers white; April and May. Drupe various; ripe August to October.

*Varieties.*
ϒ P. *d.* 2 *flòre plèno* Hort. — Flowers large, double.
ϒ P. *d.* 3 *fòliis variegàtis* Hort. — Leaves variegated.
ϒ P. *d.* 4 *armenioìdes* Ser. — Leaves and fruit like those of *A*rmenìaca brigantìaca.

The cultivated plum resembles the common sloe, but is larger in all its parts, and without thorns. There are numerous varieties and subvarieties; but, as they belong more to pomology than to arboriculture, we have here only noticed those that have some pretensions to distinctness in an ornamental point of view

The apricot-like plum seems intermediate between the wild plum and the wild apricot. The varieties cultivated for their fruit have, in general, much larger leaves, and stronger young shoots, than the other sorts; they flower later, their blossoms are larger, and their fruit, particularly such sorts as the magnum bonum and the diamond plum, several times as large; the latter being upwards of 2½ in. long. These fruit-bearing varieties are in universal cultivation in temperate climates; and for every thing of interest relating to them, as such, we refer to our *Encyclopædia of Gardening*, edit. 1835, p. 920. The use of the fruit in domestic economy, in Britain, for the dessert, and for making tarts and puddings, is well known. In France, plums are used principally dried, as an article of commerce, and they are known under the name of brignoles, prunes, and French plums. The different modes of preserving plums in France will be found detailed at length in the 1st edit. of this work, and in our *Suburban Horticulturist*.

♃ 4. P. (D.) MYROBA'LANA *L.* The Myrobalan, *or Cherry*, Plum.

*Identification.* Lin. Sp., 680.; Dec. Prod., 2. p. 533.; Don's Mill., 2. p. 500.
*Synonymes.* *P.* Myrobàlan *Du Ham.*; *P.* myrobálana *Lois.*; *P.* cerasífera *Ehrh. Beitr.* 4. p. 17.; Virginian Cherry; Early Scarlet Plum; Prunier myrobalan, or Cerisette, *Fr.*: Kirschpflaume, *Ger.*
*Engravings.* Du Ham. Arb. Fr. 2. p. 111. t. 2. fig. 15.; the plate of this tree in Arb. Brit., 1st edit., vol. v.; and our *fig.* 440.

440. Prùnus (d.) myrobálana.

*Spec. Char., &c.* Sepals narrow. Fruit globose, depressed at the base; umbilicus depressed; nut with a small point. (*Dec. Prod.*) A low tree. Europe, or, according to some, North America. Height 15 ft. to 30 ft. Cultivated in gardens for an unknown period. Flowers white; March and April. Fruit cordate, red, rarely produced in England.

*Variety.*

♃ P. (*d.*) *m.* 2 *fòliis variegàtis* N. Du Ham. has variegated leaves.

Though we consider this nothing more than a variety of the common plum, yet it is so distinct, both in the habit of the tree and the colour of the fruit, that we think it more convenient to keep it apart. Its flowers are produced as early as those of the sloe; and, the plant being more tender than that species, it seldom produces fruit in England, except when the blossoms are protected. It forms a good stock for varieties intended to be kept dwarf. In India the fruit is sold to dye black.

### 5. *P.* CA'NDICANS *Balb.* The white Plum Tree.

*Identification.* Balb. Cat. Taur., 1813. p. 62.; ? Willd. Enum. Suppl., p. 32.; Dec. Prod., 2. p. 533. Don's Mill., 2. p. 498.
*Engravings.* Bot. Reg. t. 1135.; and our *figs.* 441, 442.

441. *P.* cándicans.

*Spec. Char., &c.* Branches pubescent. Flowers 2 or 3 together, upon short pubescent peduncles. Calyx bell-shaped. Leaves broadly ovate, whitish beneath. Stipules of the length of the petiole, very narrow, and cut in a toothed manner. (*Dec. Prod.*) A low shrub. ? Tauria. Height 6 ft. to 8 ft. Introd. in 1825. Flowers white; April.

442. *P.* cándicans.

It is not known of what country it is a native. It is quite hardy, easily cultivated, and so laden with white blossoms in spring as to appear a mass of snow, whence the name.

### 6. *P. COCOMI'LLA* Tenore. The Cocomilla Plum Tree.

*Identification.* Tenore Prod. Suppl., 2. p. 67.; Cat., 1819, p. 46.; Dec. Prod., 2. p. 533.; Don's Mill., 2. p. 498.
*Engraving.* Our *fig.* 443. from a living specimen.

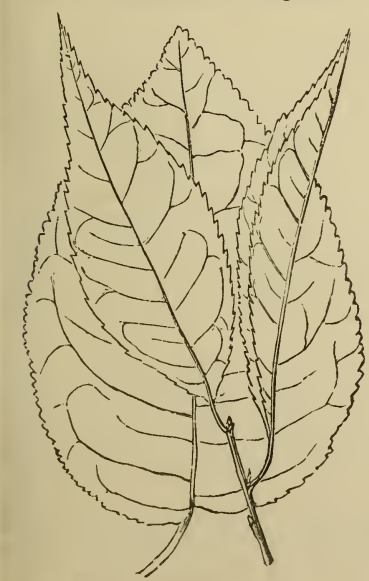
*Spec. Char., &c.* Flowers upon short peduncles, in pairs. Leaves obovate, crenulate, glabrous on both surfaces; the crenatures glanded. Fruit ovate-oblong, with a small point, yellow, ? bitter or ? acid. (*Dec. Prod.*) A low shrub. Calabria, in hedges. Height 2 ft. to 3 ft. Introduced in 1824. Flowers white; April. Drupe yellow; ripe in August.

443. *P. Cocomilla.*

The bark is febrifugal, and, in Calabria, is considered to be a specific for the cure of the pestilential fevers common in that country.

### 7. *P.* MARI'TIMA *Wangenheim.* The sea-side-*inhabiting* Plum Tree.

*Identification.* Wangenh. Amer., 103., according to Willd. Enum., p. 519.; Pursh Fl. Amer. Sept., 1. p. 332.; Dec. Prod., 2. p. 533.; Don's Mill., 2. p. 499.
*Synonyme.* ?*P.* acumináta *Michx. Fl. Bor. Amer.* p. 284.
*Engravings.* Our *fig.* 444., from a living specimen, and *fig.* 445. from Pursh's specimen in the Lambertian herbarium.


445. Prùnus marítima.

444. Prùnus marítima.

*Spec. Char., &c.* Leaves lanceolate-ovate, serrate. Flowers in pairs. Fruit small, round, sweet, dark blue.

(*Dec. Prod.*) A middle-sized shrub. North America, in sandy soils, on the sea coast, from New Jersey to Carolina. Height 6 ft. to 8 ft. Introduced in 1818. Flowers white; April and May. Fruit, of the size of a pigeon's egg, dark purple, and, according to Pursh, very good to eat; ripe ?.

There are plants in British gardens, but they have never yet set fruit.

8. *P.* PUBE'SCENS *Poir.* The pubescent-*leaved* Plum Tree.

*Identification.* Poir. Suppl., 4. p. 584., not of Pursh; Dec. Prod., 2. p. 533.; Don's Mill., 2. p. 499.
*Engraving.* Our *fig.* 2084 in p. 1106.

*Spec. Char., &c.* Leaves with short pubescent petioles, and disks that are slightly pubescent, ovate, thickish, rounded, or shortly acuminate and unequally toothed. Flowers mostly solitary and nearly sessile. Fruit oval. (*Dec. Prod.*) A shrub. Native country unknown. Cultivated in 1818. Height 2 ft. to 3 ft. Flowers white; May.

9. *P.* DIVARICA'TA *Led.* The divaricated-*branched* Plum Tree.

*Identification.* Ledeb. Ind. Hort. Dorp. Suppl. 1824, p 6.; Fl. Alt., t. 13.; Dec. Prod., 2. p. 534.; Don's Mill., 2. p. 504.
*Engravings.* Led. Flor. Alt., t. 13.; and our *fig.* 446.

446. *Prùnus divaricàta.*

*Spec. Char., &c.* Branches spineless. Leaves with glandless petioles, and disks oblong-elliptical, tapered to both ends, concave above, serrate, glabrous, with the midrib bearded beneath. Flowers solitary, very numerous. Calyx reflexed. Fruit elliptical, yellow. (*Dec. Prod.*) A middle-sized shrub. Caucasus. Height 8 ft. to 10 ft. Introduced in 1820. Flowers white; April.

*Other Species of Prùnus* Juss. — In consequence of many species of the genus *P*rùnus being removed to *C*érasus; and also because of the close resemblance of one species to another in both genera, there is a good deal of confusion, which cannot be cleared up till the plants are studied in a living state. *P*rùnus effùsa was raised in 1838, in the Hort. Soc. Garden, from seeds presented by Baron Jacquin.

## GENUS V.

CE'RASUS *Juss.* THE CHERRY. *Lin. Syst.* Icosándria Monogýnia.

*Identification.* Juss. Gen., 340.; Dec. Fl. Fr. 4. p. 479.; Prod., 2. p. 535; Don's Mill., 2. p. 504.
*Synonymes.* Laurocèrasus *Tourn.*; *P*rùnus sp. *Lin.*; Cerisier, *Fr.*; Kirsche, *Ger.*; Ciliegio, *Ital.*
*Derivation.* From *Cerasus*, the ancient name of a town of Pontus in Asia, whence the cultivated cherry was first brought to Rome, by Lucullus, a Roman General, 68 B.C.

*Gen. Char.* *Drupe* globose, or umbilicate at the base, fleshy, quite glabrous, destitute of bloom, containing a smooth, rather globose compressed stone. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous, or evergreen; when young, conduplicate. *Flowers* white. *Pedicels* 1-flowered, rising before the leaves, in fascicled umbels, from scaly buds; but sometimes rising after the evolution of the leaves, in racemes, from the tops of the branches.—Trees and shrubs, almost all deciduous, with smooth serrated leaves, and white flowers; and, generally, with light-coloured bark. Natives of Europe, Asia, and North America.

Some of them are cultivated for their fruit, and the others as ornamental. In British nurseries, the deciduous species are generally propagated by grafting or budding on the *C*érasus sylvéstris, and the evergreens are propagated

by cuttings or seeds ; they will grow in any common soil that is tolerably dry There is much confusion in all the species, more particularly as regards those which are natives of North America ; and which, as Sir W. J. Hooker judiciously observes, can only be " removed by carefully studying the plants in a living state, both during the season of the blossom and that of the fruit." (*Flor. Bor. Amer.*, i. p. 167.)

## § i. *Cerasóphora* Dec. *The Cherry-bearing Kinds.*

*Sect. Char.* Flowers produced from buds upon shoots not of the same year ; and, in many instances, disposed umbellately. Leaves deciduous.

### A. *Species cultivated for their Fruit.*

*The Cherries cultivated in Gardens*, according to Linnæus, and almost all botanists to the time of DeCandolle, have been referred to *P*rùnus àvium *L.* and *P*rùnus *C*érasus *L.* ; the former being the mérisier of the French, and corresponding with the small wild black bitter cherry of the English (the *C.* sylvéstris of Ray) ; and the latter the cerisier of the French, and corresponding with the common red sour cherry of the English (the *C.* vulgàris of Miller). To these two species DeCandolle has added two others: *C*érasus Juliàn*a*, which he considers as including the guigniers ; and *C*érasus durácina, under which he includes the bigarreaus, or hard cherries. Under each of these four species, Seringe, in DeCandolle's *Prodromus*, has arranged a number of varieties, with definitions to each group : but, as neither the species nor the groups appear to us distinct, we have adopted the arrangement of the author of the article on *C*érasus in the *Nouveau DuHamel*, as much more simple and satisfactory ; and have referred all the cultivated varieties to the same species as Linnæus ; substituting for *P*rùnus àvium *L.*, *C*érasus sylvéstris, the synon. of Ray ; and for *P*rùnus *C*érasus *L.*, *C*érasus vulgàris, already used to designate the same species in *Mill. Dict.*, and by Loiseleur in the *Nouveau Du Hamel.* The arrangement of the varieties, and general culture of the cherry in the kitchen-garden and orchard, will be found at length in our *Encyclopædia of Gardening ;* and, in a more condensed form, in our *Suburban Horticulturist.*

♀ 1. *C.* SYLVE'STRIS *Bauh.* and *Ray.* The wild *black-fruited* Cherry Tree.

*Identification.* Bauh. Hist., 1. 1. 2. p. 220. ; Ray Hist. 1539. ; Pers. Syn., 2. p. 35.

*Synonymes and Garden Names.* *C.* àvium *Mœnch*, *N. Du Ham.* 5. p. 10., *Don's Mill.* 2. p. 505. ; *C.* nigra *Mill. Dict.* No. 2., not of Ait. ; *P*rùnus àvium *Lin. Sp.* 680. ; *P.* àvium var. α and β *Willd. Baum.* ed. 2. p. 308. ; *P*rùnus àvium var. β and γ *Eng. Flor.* 2. p. 355. ; *P.* nigricans and *P.* vária *Ehr. Beitr.* 7. p. 126, 127. ; Gean, Bigarreau, Corone, Coroon, Small Black, Black Hertfordshire, Black Heart, Black Mazzard, the Merry Tree *of the Cheshire peasants*, the Merries *in Suffolk ;* Mérisier, Merise grosse noire, Guignier, Bigarreautier, Heaumier, *Fr.* ; Süsse Kirsche, *Ger.* ; Ciregiolo, *Ital.*

*Derivation.* This cherry is called Corone, or Coroon, in some parts of England, from *corone*, a crow, in reference to its blackness. Merry Tree and Merries are evidently corruptions of the word Mérisier ; and Mérisier is said to be derived from the words *amère*, bitter, and *cerise*, a cherry. Bigarreau is derived from *bigarrée* party-coloured, because the cherries known by this name are generally of two colours, yellow and red ; and Heaumier is from the French word *heaume*, a helmet, from the shape of the fruit.

*Engravings.* Du Ham. Tr. Arb., 1. p. 156. ; Arb. Brit., 1st edit., vol. vi. ; and our *fig.* 447.

*Spec. Char., &c.* Branches vigorous and divaricate ; the buds from which the fruits are produced oblong-acute. Flowers in umbel-like groups, sessile, not numerous. Leaves oval-lanceolate, pointed, serrated, somewhat pendent, slightly pubescent on the under side, and furnished with two glands at the base. (*Dec. Prod.*, *N. Du Hamel.*) A middle-sized tree. Europe, in woods and hedges. Height, in dry fertile soils, 40 ft. to 50 ft. or upwards. Flowers white ; April and May. Drupe red or black ; ripe in July. Decaying leaves of a fine red, or rich yellow and red.

*Varieties.*

1. *Mérisiers* or *Merries*, with black or yellow fruit.
2. *Guigniers* or *Geans* (*C.* Juliàn*a* Dec.), with red or black fruit, early or late, and including the tobacco-leaved guignier, or gean, of four to the pound (the *C.* decumàna of Delauny).

3. *Heaumiers, the Helmet-shaped Cherries* (*C.* Juliàn*a* var. *heaumiàna* Dec.), somewhat resembling the bigarreau, but with less firm flesh.

*Variety of this race used for ornamental purposes.*

ϒ C. *s. durácina* 2 *flòre plèno* Hort., the double flowered wild black Cherry; Mérisier à Fleurs doubles, or Mérisier Renunculier, *Fr.*; is a very beautiful variety, known, in the garden of the Hort. Soc., as the double French white.

4. *Bigarreautiers, the Bigarreaus, or hard-fleshed Cherries* (*C.* durácina *Dec.*) with white, flesh-coloured, and black fruit, generally heart-shaped.

447. Cérasus sylvéstris.

The colour of the fruit of the wild species is a very deep dark red, or black; the flesh is of the same colour, small in quantity, austere and bitter before it comes to maturity, and insipid when the fruit is perfectly ripe. The nut is oval or ovate, like the fruit, firmly adhering to the flesh, and very large in proportion to the size of the fruit. The juice is mostly coloured; and the skin does not separate from the flesh.

### ϒ 2. *C.* VULGA'RIS *Mill.* The common Cherry Tree.

*Identification.* Mill. Dict., No. 1.; N. Du Ham., 5. p. 18.

*Synonymes and Garden Names.* Cérasus àvium *Mœnch*; Prùnus Cérasus *Lin. Sp.* 679.; *C.* hortènsis *Pers. Syn.* 2. p. 34.; *C. caproniàna* Dec. Prod. 2. p. 536., Don's Mill. 2. p. 507.; *P.* austèra and *P.* ácida *Ehr. Beitr.* 7. p. 129. and 130.; *P.* Cérasus var. α *Eng. Flor.* 2. p. 354.; Cherry, Kentish or Flemish Cherry, Morello, May Duke; Cerise de Montmorency, Cerise de Paris, Cerise à Fruits ronds, Cerisier du Nord, Cerisier, and Griottier in some provinces, *Fr.*; Saure Kirsche, *Ger.*; Marasca, or Ciliegio, *Ital.*

*Derivation.* *Caproniàna* is said to be derived from *capron*, the hautbois strawberry, probably from this cherry possessing so much more flavour than *C.* sylvéstris. Morello is either from *morel* (*Morchélla* esculénta), the flesh being of the same consistency as the flesh of that fungus; or, perhaps, from the French word *morelle*, a female negro. May Duke is a corruption of *Médoc*, the province of France where the variety is supposed to have been originated. Griottier is said to be derived from *aigreur*, sourness, or sharpness, and applied to this cherry from the acidity of its fruit.

*Engravings.* Eng. Bot., t. 706.; Arb. Brit., 1st edit., vol. vi., as Cérasus àvium; and our *fig.* 448.

*Spec. Char., &c.* Tree small, branches spreading. Flowers in subsessile umbels, not numerous. Leaves oval-lanceolate, toothed, glabrous. A deciduous tree. Europe and Britain, in gardens and plantations. Height 30 ft. to 40 ft. Flowers white; May. Drupe red; ripe in July. Decaying leaves red and yellow.

*Varieties.* — There are numerous cultivated varieties, which are classed by Loiseleur in the *Nouveau Du Hamel* in three groups, including in the first

448. Cérasus vulgàris.

of these the four following varieties, which we particularise on account of their being purely ornamental: —

♃ C. *v.* 2 *flòre semiplèno* Hort.—Flowers semidouble.

♃ C. *v.* 3 *flòre plèno* Hort.—All the stamens of this variety are changed into petals; and the pistillum into small green leaves, which occupy the centre of the flower. The flower is smaller and less beautiful than that of the double mérisier; but, as the tree does not grow so high, and as it can be grown as a shrub, it is suitable for planting in situations where the other cannot be introduced. It is commonly grafted on the *Prùnus Mahàleb.*

♃ C. *v.* 4 *persicifòra* Hort.—The flowers are double, and rose-coloured. This variety was known to Bauhin and to Tournefort, but is at present rare in gardens.

♃ C. *v.* 5 *fòliis variegàtis* Hort. has variegated leaves.

*The fruit-bearing varieties* are arranged in the *Nouveau Du Hamel*, under the following heads: —

1. Flesh whitish, and more or less acid; including the Montmorency cherry.
2. Flesh whitish, and only very slightly acid; including the English duke cherries.
3. Flesh red, including the griottiers, or morellos.

*The following selection* has been made by Mr. Thompson, with a view of exemplifying the different forms which the varieties of the cultivated cherries assume, as standard trees: —

*The Bigarreau* is a tree of vigorous growth, with large pale green leaves, and stout divergent branches.

*Buttner's Yellow* is a vigorous-growing tree, like the preceding, but with golden-coloured fruit.

*The Kentish Cherry* is a round-headed tree, with slender shoots, somewhat pendulous.

*The May Duke* is a middle-sized or low tree with an erect fastigiate head.

*The Morello* is a low tree, with a spreading head, somewhat pendulous; most prolific in flowers and fruit; the latter ripening very late, and,

from not being so greedily eaten by the birds as most other sorts, hanging on the trees a long time.

*D'Ostheim* is a dwarf weeping tree, a great bearer.

ϯ C. *v.* 6 Maráscha, *P*rùnus *Maráscha* Jacq., is the variety from the fruit of which the liqueur called Maraschino is made. Plants of it have been raised in the Hort. Soc. Garden in 1837.

The flowers are smaller than those of *C.* sylvéstris. The fruit is round, melting, full of a watery sap, more or less flavoured, and almost always sensibly acid. The skin of the fruit is commonly red, but, in the numerous varieties in cultivation, passing into all the shades between that colour and dark purple or black. The skin of all the varieties of *C.* vulgàris separates easily from the flesh, and the flesh parts readily from the stone; while, in all the varieties of *C.* sylvéstris, the skin is more or less adhering to the flesh, and the flesh to the stone. (*N. DuHam.*, v. p. 18.) This species forms a tree of less magnitude than that of *C.* sylvéstris: it is never found in a truly wild state in Europe, and the aboriginal form is unknown.

*Remarks referring to both Species.* — The cherry trees in cultivation, whether in woods or gardens, may, in point of general appearance, be included in three forms: large trees with stout branches, and shoots proceeding from the main stem horizontally, or slightly inclining upwards, and when young and without their leaves, bearing a distant resemblance to gigantic candelabra, such as the geans, and many of the heart cherries; fastigiate trees of a smaller size, such as the dukes; and small trees with weak wood, and branches divergent and drooping, such as the Kentish or Flemish cherries, and the morellos. The leaves vary so much in the cultivated varieties, that it is impossible to characterise the sorts by them; but, in general, those of the large trees are largest, and the lightest in colour, and those of the slender-branched trees the smallest, and the darkest in colour; the flowers are also largest on the large trees. The distinction of two species, or races, is of very little use, with reference to cherries as fruit-bearing plants; but, as the wild sort, *C.* sylvéstris, is very distinct, when found in its native habitats, from the cherry cultivated in gardens, it seems worth while to keep them apart, with a view to arboriculture and ornamental planting. For this reason, also, we have kept *C*érasus semperflòrens, *C.* Pseùdo-*C*érasus, *C.* serrulàta, and *C. C*hamæcérasus apart, though we are convinced that they are nothing more than varieties. In consequence of its rapid growth, the red-fruited variety ought to be preferred where the object is timber, or where stocks are to be grown for fruit trees of large size. As a coppice-wood tree, the stools push freely and rapidly; and, as a timber tree, it will attain its full size, in ordinary situations, in 50 years. Its rate of growth, in the first 10 years, will average, in ordinary circumstances, 18 in. a year. There are various trees in the neighbourhood of London upwards of 60 ft. high; one on the Cotswold Hills, on the estate of the Earl of Harrowby, is 85 ft. high. The wood of the wild cherry (*C.* sylvéstris) is firm, strong, close-grained, and of a reddish colour. It weighs, when green, 61 lb. 13 oz. per cubic foot; and when dry, 54 lb. 15 oz.; and it loses in the process of drying about a 16th part of its bulk. The wood is soft and easily worked, and it takes a fine polish. It is much sought after by cabinetmakers, turners, and musical instrument makers, more particularly in France, where mahogany is much less common than in Britain. The fruit of the cherry is a favourite with almost every body, and especially with children. The distillers of liqueurs make great use of ripe cherries: the spirit known as kirschewasser is distilled from them after fermentation; and both a wine and a vinegar are made by bruising the fruit and the kernels, and allowing the mass to undergo the vinous fermentation. The ratafia of Grenoble is a celebrated liqueur, which is made from a large black gean; from which, also, the best kirschewasser is made; and the maraschino from a variety of the tree found in Dalmatia. The preparation of these will be found in our first edition.

B. *Species or Varieties cultivated as ornamental or curious.*

♆ 3. *C.* (v.) SEMPERFLO'RENS *Dec.* The ever-flowering Cherry Tree.

*Identification.* Dec. Fl. Fr., 4. p. 481., and Prod., 2. p. 537.; Don's Mill., 2 p. 13.
*Synonymes.* Prùnus semperflòrens *Ehrh. Beitr.* 7. p. 132.; *P.* serótina *Roth Catal.* 1. p. 58.; the weeping Cherry, the Allsaints Cherry; Cerise de la Toussaint, Cerise de St. Martin, Cerise tardive, *Fr.*
*Engravings.* N. Du Ham., p. 30. No. 18. t. 5. f. A; the plate in Arb. Brit., 1st edit., vol. v.; and our *fig.* 449.

449. Cérasus (v.) semperflòrens.

*Spec. Char., &c.* Branches drooping. Leaves ovate, serrated. Flowers protruded late in the season, axillary, solitary. Calyx serrated. Fruits globos, and red. Its native country not known. (*Dec. Prod.*) A low pendulous tree. Height 10 ft. to 20 ft. A garden production. Cultivated in ? 1700. Flowers white; May. Drupe red; July and August.

An ornamental tree, usually grafted standard high on the common wild cherry, or gean; growing rapidly for 8 or 10 years, and forming a round head, 8 or 10 feet high, and 10 or 12 feet in diameter, with the extremities of the branches drooping to the ground; and flowering and fruiting almost the whole summer. It forms a truly desirable small single tree for a lawn.

450. Cérasus serrulàta.

♆ 4. *C.* SERRULA'TA *G. Don.* The serrulated-*leaved* Cherry Tree.

*Identification.* Hort. Brit., p. 480.; Don's Mill., 2. p. 514.
*Synonymes.* Prùnus serrulàta *Lindl. Hort. Trans.* 7. p. 238.; double Chinese Cherry; Yung-To, *Chinese.*
*Engraving.* Our *fig.* 450. from a living specimen.

*Spec. Char., &c.* Leaves obovate, acuminated, setaceously serrulated, quite glabrous. Petioles glandular. Flowers in fascicles. (*Don's Mill.*) A low erect tree, or rather tree-like shrub. China. Height in China 4 ft. to 6 ft.; in British gardens 6 ft. to 10 ft. Introduced in 1822. Flowers double white, tinged with red, though not so much so as the double French cherry.

This tree resembles the common cherry tree, but is not of such vigorous growth; and only the double-flowered variety of it has been yet introduced. A very ornamental plant.

### ♀ 5. *C.* Pseu'do-*Ce'*rasus *Lindl.* The False-Cherry Tree.

*Identification.* Hort. Brit., No. 12663.; Don's Mill., 2. p. 514.
*Synonymes.* *Prùnus* Pseùdo-Cerasus *Lindl. Hort. Trans.* 6. p. 90.; *P.* paniculàta *Ker Bot. Reg.* 800., but not of Thunb.; Yung-To, *Chinese.*
*Engravings.* Bot. Reg., t. 100.; and our *fig.* 451.

*Spec. Char., &c.* Leaves obovate, acuminate, flat, serrated. Flowers racemose. Branches and peduncles pubescent. Fruit small, pale red, of a pleasant subacid flavour, with a small smooth stone. (*Don's Mill.*) A low tree. China. Height 8 ft. to 10 ft. Introduced in 1819. Flowers white; March and April. Fruit pale red; ripe in June.

451. *C.* Pseùdo-*Cérasus.*

This tree is readily known from the other cherry trees, even when without its leaves, by its rough gibbous joints, at which it readily strikes root; and is, consequently, very easily propagated. It has been tried by Mr. Knight, as a fruit tree; and he finds that it forces in pots better than any other variety. Desirable for small gardens, on account of its very early flowering.

### ♃ 6. *C.* *C*ham*æce'*rasus *Lois.* The Ground-Cherry Tree, *or Siberian Cherry.*

*Identification.* Lois. in N. Du Ham., 5. p. 29.; Dec. Prod., 2. p. 537.; Don's Mill., 2. p. 513.
*Synonymes.* *C.* intermèdia *Lois.* in *N. Du Ham.* 5. p. 30.; *Prùnus* intermèdia *Poir. Dict.* 5. p. 674.; *P.* fruticòsa *Pall.*, according to *Besser*; Cérasus pùmila *C. Bauh.*, according to *Pall. Fl. Ross.*; Chamæcérasus fruticòsa *Pers. Syn.* 2. p. 34.
*Engravings.* N. Du Ham., 5. p. 29. t. 5. f. A; Hayne Abbild., t. 61.; and our *fig.* 452.

*Spec. Char., &c.* Leaves ovate-oblong, glabrous, glossy, crenate, bluntish, rather coriaceous, scarcely glanded. Flowers in umbels, which are usually on peduncles, but short ones. Pedicels of the fruit longer than the leaves. Fruit round, reddish purple, very acid. (*Dec. Prod.*) A neat little shrub. Siberia and Germany. Height 3 ft. to 4 ft. Introd. in 1587. Flowers white; May. Drupe reddish purple; ripe in August.

452. *C.* Chamæcérasus.

It forms a neat little narrow leaved bush, which, when grafted standard high, becomes a small round-headed tree with drooping branches, at once curious and ornamental. It does not grow above a fourth part of the size of *C.* semperflòrens; and, like it, it flowers and fruits during great part of the summer.

### ♃ 7. *C.* prostra'ta *Ser.* The prostrate Cherry Tree.

*Identification.* Seringe in Dec. Prod., 2. p. 538.; Don's Mill., 2. p. 514.
*Synonymes.* *Prùnus* prostràta *Hort. Kew.* ed. 2 3. 199., and *Lab. Pl. Syr Dec.* 1. p. 15.; *Prùnus* incàna *Stephen* in *Mém. Soc. Mosq.* 3. p. 263.
*Engravings.* Pall. Fl. Ross., 1. t. 7.; Bot. Reg., t. 106.; and our *fig.* 453.

*Spec. Char., &c.* Decumbent. Leaves ovate, serrately cut, glandless, tomentose, and hoary beneath. Flowers mostly solitary, nearly sessile. Calyx tubular. Petals ovate, retuse, rose-coloured. Fruit ovate, red; flesh thin.

(*Dec. Prod.*) A prostrate shrub. Native of the mountains of Candia, of Mount Lebanon, and of Siberia. Height ½ ft. to 1 ft. Introduced in 1802. Flowers rose-coloured; April and May. Drupe red; ripe July.

A very desirable species for grafting standard high on the common cherry. The red colour of the flowers is very uncommon in this genus.

453. *Cerasus prostrata.*

### ✝ 8. *C.* PERSICIFO`LIA *Lois.* The Peach-tree-leaved Cherry Tree.

*Identification.* Lois. in N. Du Ham., 5. p. 9.; Dec. Prod., 2. p. 537.; Don's Mill., 2. p. 513.
*Synonyme.* Prùnus persicifòlia *Desf. Arb.* 2. p. 205.
*Engraving.* Our *fig.* 000. in *fig.* 000.

*Spec. Char., &c.* Leaves ovate-lanceolate, acuminate, unequally serrate, glabrous, with two glands upon the petiole. Flowers numerous, upon slender peduncles, and disposed umbellately. (*Dec. Prod.*) A deciduous tree. ? America. Height 30 ft. to 50 ft. Introduced in 1818. Flowers white; May. Drupe small, black; ripe in July.

A rapidly growing tree, attaining the height of the common wild cherry, and bearing so close a resemblance to it in almost every respect, that it is probably only a variety of it. There are trees of this kind of cherry in the Jardin des Plantes at Paris, of a pyramidal form, with a reddish brown smooth bark, flowers about the size of those of *C. Mahàleb*, and fruit about the size of peas. The wood is said to be harder and redder than that of the common wild cherry. It was raised from seeds sent from America by Michaux.

### ✝ 9. *C.* BOREA`LIS *Michx.* The North-*American* Cherry Tree.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 286.; Lois. in N. Du Ham., 5. p. 32. No. 22.; Dec. Prod., 2. p. 538.; Don's Mill., 2. p. 513.
*Synonymes.* Prùnus borcàlis *Poir. Dict.* 5. p. 674.; the Northern Choke Cherry, *Amer.*
*Engravings.* Michx. Arb. Amer., 3. t. 8.; and our *fig.* 454.

*Spec. Char., &c.* Leaves oval-oblong, acuminate, membranaceous, glabrous, denticulate and almost in an eroded manner: they resemble those of the common almond tree, but have the serratures inflexed, protuberant, and tipped with minute glandulous mucros. Flowers on longish pedicels, and disposed nearly in a corymbose manner. Fruit nearly ovate, small; its flesh red. (*Dec. Prod.*) A small tree. Northern parts of North America. Height 20 ft. to 30 ft., with a trunk 6 in. to 8 in. in diameter. Introduced in 1822. Flowers white; May. Drupe red; ripe in July.

Of all the cherries of North America, Michaux observes, the *C.* boreàlis is the one that has the greatest analogy with the cultivated cherry of Europe. Pursh describes it as a very handsome small tree, the wood exquisitely hard and fine-grained; but the cherries, though agreeable to the taste, astringent in the mouth, and hence called choke cherries.

454. *Cérasus boreàlis.*

### ✱ 10. *C.* PU`MILA *Michx.* The dwarf Cherry Tree.

*Identification.* Michx. Fl. Bor. Amer., 2. p. 286.; Dec. Prod., 2. p. 537.; Don's Mill., 2. p. 513.
*Synonymes.* Prùnus pùmila *Lin. Mant.* 73., *Pursh Fl. Amer. Sept.* 1. p. 331.; Cérasus glauca *Mœnch Meth.* 672.; Ragouminier, Nega, Menel du Canada, *Fr.*

*Engravings.* Mill. Icon., t. 80. f. 2.; and our *fig.* 455

*Spec. Char., &c.* Branches twiggy. Leaves obovate-oblong, upright, glabrous, indistinctly serrulated, glaucous beneath. Flowers upon peduncles, disposed rather umbellately. Calyx bell-shaped, short. Fruit ovate, black. (*Dec. Prod.*) A low somewhat procumbent shrub. North America, in Pennsylvania and Virginia, in low grounds and swamps. Height 3 ft. to 4 ft. Introduced in 1756. Flowers white; May. Drupe black; ripe in July.

455. Cérasus pùmila.

A curious and rather handsome tree, when grafted standard high; and a fit companion for the other dwarf sorts, when so grafted. Sir W. J. Hooker suspects this to be the same as *C.* depréssa. It has been compared, Sir W. J. Hooker observes, in its general habit, to *Amýgdalus nàna*; and such a comparison is equally applicable to *C.* depréssa. (*Fl. Bor. Amer.*, i. p. 167.)

### ✱ 11. *C.* (P.) DEPRE'SSA *Ph.* The depressed, *or prostrate*, Cherry Tree.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 332.; Dec. Prod., 2. p. 538.; Hook. Fl. Bor. Amer., 1. p. 168.; Don's Mill., 2. p. 514.
*Synonymes.* *C.* pùmila *Michx. Fl. Bor. Amer.* 1. p. 286., not *Prùnus pùmila L.*; *P.* Susquehànæ *Willd. Enum.* 519., *Baumz.* ed. 2. p. 286.; Sand Cherry, *Amer.*
*Engraving.* Our *fig.* 456. from living plant in Loddiges's arboretum.

*Spec. Char., &c.* Branches angled, depressed, prostrate. Leaves cuneate-lanceolate, sparingly serrate, glabrous, glaucous beneath. Flowers in grouped sessile umbels, few in an umbel. Fruit ovate. (*Dec. Prod.*) A prostrate shrub. North America, from Canada to Virginia, on the sandy shores of rivers and lakes. Height 1 ft. Introduced in 1805. Flowers white; May. Drupe black, small, and agreeably tasted; ripe in July.

456. *C.* (p.) depréssa.

In America it is called the sand cherry, and said to be distinguished at sight from all the other species, not less by its prostrate habit, than by its glaucous leaves, which bear some resemblance in shape to those of *Amýgdalus nàna*; and, according to Sir W. J. Hooker, to those of *C.* pùmila.

### ✱ 12. *C.* PYGMÆ'A *Lois.* The pygmy Cherry Tree.

*Identification.* Lois. in N. Du Ham., 5. p. 32. and 21.; Dec. Prod., 2. p. 538.; Don's Mill., 2. p. 513.
*Synonyme.* *Prùnus* pygmæ'a *Willd. Sp.* 2. p. 993., *Pursh Fl. Amer. Sept.* 1. p. 331.
*Engraving.* Our *fig.* 457. from a specimen in the Lambertian herbarium.

*Spec. Char., &c.* Leaves ovate-elliptical, but tapered to the base, and rather acute at the tip, sharply serrated, glabrous on both surfaces, and with 2 glands at the base. Flowers of the size of those of *P.* spinòsa, disposed in sessile umbels, a few in an umbel. (*Dec. Prod.*) A low shrub. Western parts of Pensylvania and Virginia. Height 4 ft. to 5 ft. Introduced in 1823. Flowers white; May. Drupe black, of the size of a large pea, a little succulent, and very indifferent to the taste; ripe in July.

457. *C.* pygmæ'a.

### ✱ ☿ 13. *C.* NI'GRA *Lois.* The black Cherry Tree.

*Identification.* N. Du Ham., 5. p. 32.; Dec. Prod., 2. p. 538.; Don's Mill., 2. p. 513.
*Synonymes.* *Prùnus* nigra *Ait. Hort. Kew.* 2d ed. 3. p. 193., *Pursh Fl. Amer. Sept.* 1. p. 331.; *P.* americàna *Darlington* in *Amer. Lyc. N. H. of New York.*
*Engravings.* Bot. Mag., t. 1117.; and our *figs.* 458, 459.

*Spec. Char., &c.* Leaf with 2 glands upon the petiole, and the disk ovate-acuminate. Flowers in sessile umbels, few in an umbel. Calyx purple; its lobes obtuse, and their margins glanded. (*Dec. Prod.*) A tall shrub or

458. *C.* nigra.

low tree. Canada and the Alleghany Mountains. Height 6 ft. to 10 ft. Introduced in 1773. Flowers white, with purple anthers. Drupe red; April, May.

459. *C.* nigra.

The fruit, which, as far as we know, has not been produced in England, is described by Sir W. J. Hooker as being as large as a moderate-sized cherry, and, apparently, red. In British gardens this forms a very handsome small tree, distinguished even in winter by the smoothness and dark colour of its young wood, and in this respect resembling more a plum than a cherry.

### 14. *C.* HYEMA'LIS *Michx.* The winter Cherry Tree.

*Identification.* N. Du Ham., 5. p. 194.; Dec. Prod., 2. p. 538.; Don's Mill., 2. p. 514.
*Synonymes.* *P.* hyemàlis *Michx. Fl. Bor. Amer.* 1. p. 284., *Pursh Fl. Amer. Sept.* 1. p. 331., *Elliot Carol.* 1. p. 542.; the black Choke Cherry, *Amer.*
*Engraving.* Our *fig.* 460. from a specimen in the museum of the Jardin des Plantes.

460. *C.* hyemàlis.

*Spec. Char., &c.* Leaves oblong-oval, or oval, abruptly acuminate. Flowers glabrous, disposed umbellately. Lobes of the calyx lanceolate. Fruit nearly ovate, and blackish. (*Dec. Prod.*) A shrub. Western mountains of Virginia and Carolina. Height 3 ft. to 4 ft. Introduced in 1805. Flowers white; May. Drupe small, black, and extremely astringent, but eatable in winter; ripe in October.

### 15. *C.* CHI'CASA *Michx.* The Chicasaw Cherry Tree.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 284.; Lois. in N. Du Ham., 5. p. 183.; Dec. Prod., 2. p. 538.; Don's Mill., 2. p. 514.
*Synonymes.* Prùnus chicasa *Pursh Fl. Amer. Sept.* 1. p. 332.; *P.* insititia *Walt. Carol.*; Chickasaw Plum, *in Carolina.*
*Engraving.* Our *fig.* 461. from a living specimen in Loddiges's arboretum.

461. *C.* chicasa.

*Spec. Char., &c.* Branches glabrous, becoming rather spiny. Leaves oblong-oval, acute, or acuminate. Flowers upon very short peduncles, and mostly in pairs. Calyx glabrous, its lobes very short. Fruit nearly globose, small, yellow. (*Dec. Prod.*) A shrub. Carolina and Virginia. Height 6 ft. Introd. 1806. Flowers white; April and May. Drupe small, yellow, and agreeably tasted; ripe in July.

452. *C.* pubéscens. 463.

Sir W. J. Hooker observes that a plant which he received under this name appeared to him identical with *C.* boreàlis; the plants in the London gardens are very different, resembling much more closely the common sloe, as will appear by our figure.

### 16. *C.* PUBE'SCENS *Ser.* The pubescent Cherry Tree.

*Identification.* Seringe in Dec. Prod., 2. p. 538.; Don's Mill., 2. p. 514.
*Synonymes.* Prùnus pubéscens *Ph. Fl. Amer. Sept.* 1. p. 331., and *Lodd. Cat.*; *P.* sphærocárpa *Michx. Fl. Bor. Amer.* 1. p. 284., not of Swartz.
*Engravings.* Our *fig.* 462. from a living specimen in Loddiges's arboretum; and *fig.* 463. from a specimen in the Lambertian herbarium.

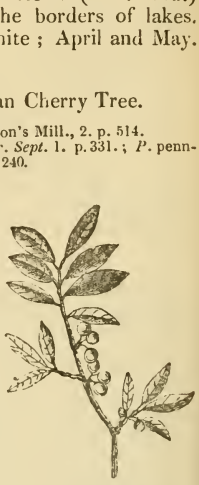
*Spec. Char., &c.* Young branches pubescent. Leaves with

the disk shortly oval, serrulated, and usually with 2 glands at its base. Flowers in sessile umbels, few in an umbel; pedicels and calyxes pubescent. Fruit upon a short pedicel, globose, brownish purple, austere. (*Dec. Prod.*) A low shrub. Western parts of Pennsylvania, on the borders of lakes. Height 1 ft. to 3 ft. Introduced in 1820. Flowers white; April and May. Drupe brownish purple, very astringent; ripe in July.

### 17. *C.* PENNSYLVA'NICA *Lois.* The Pennsylvanian Cherry Tree.

*Identification.* Lois. in N. Du Ham., 5. p. 9., Dec. Prod., 2. p. 539.; Don's Mill., 2. p. 514.
*Synonymes.* *Prùnus* pennsylvánica *L. fil. Suppl.* p. 252., *Pursh Fl. Amer. Sept.* 1. p. 331.; *P.* pennsylvánica *Willd. Baum.* edit. 1811, p. 310.; *P.* lanceolàta *Willd. Abb.* p. 240.
*Engravings.* Abb. Georg. Ins., vol. i. p. 89. t. 45.; and our *fig.* 464.

*Spec. Char., &c.* Leaves with two glands at the base of the disk, which is oblong-lanceolate, acuminate, and glabrous. Flowers disposed in grouped sessile umbels, which have something of the character of panicles. (*Dec. Prod.*) A shrub. North America, from New England to Virginia, in woods and plantations. Height 6 ft. to 8 ft. Introduced in 1773. Flowers white; May. Drupe black, small, but agreeable to eat; ripe in July.


464. *C.* pennsylvánica.

Sir W. J. Hooker considers this sort as synonymous with *C.* boreàlis *Michx.*, in which he may probably be correct. We have, however, kept them distinct; not only because the whole genus appears in a state of confusion, but because, though *C.* pennsylvánica is said to have been introduced in 1773, we have never seen the plant in a healthy state, and, consequently, feel unable to give any decided opinion respecting it.

### 18. *C.* JAPO'NICA *Lois.* The Japan Cherry Tree.

*Identification.* Lois. in N. Du Ham., 5. p. 83.; Don's Mill., 2. p. 514.
*Synonymes.* *Prùnus* japónica *Thunb. Fl. Jap.* p. 201., and *Lindl.* in *Bot. Reg.* t. 1801.; *P.* sinènsis *Pers. Ench.* 2. p. 36.
*Engravings.* Bot. Reg., t. 1801., from a plant grown in a green-house; and our *figs.* 465, 466. from a plant grown in the open air.

465. *C.* japónica.

*Spec. Char., &c.* Leaves ovate, acuminated, glabrous, shining. Peduncles solitary. Lobes of calyx shorter than the tube. (*Don's Mill.*) A slender shrub, somewhat tender. China. Height 2 ft. to 4 ft. Introd. 1810. Flowers pale blush-coloured, produced in profusion on numerous slender purplish or brownish red twigs; March to May. Drupe ?. Naked young wood brownish red.

466. *C.* japónica.

*Variety.*

C. *j.* 2 *múltiplex* Ser. *Amýgdalus* pùmila *Lin. Mant.* 74., *Bot. Mag.* t. 2176., and of the Hammersmith and other nurseries. (Our *figs.* 467, and 468.) — Flowers semidouble, pink like those of the species.

467. *C.* j. multiplex.

There are two shrubs in British nurseries often confounded under the name of *A.* pùmila. The one is that now described, which may be known at any season by the purplish or brownish red colour of the bark of its young shoots; and, in summer, by its glabrous finely serrated leaves, which have a

468. *C.* j. múltiplex.

reddish tinge on their margins, and on the midribs. The other, *C.* sinénsis described below, the *P*rùnus japónica of Ker, and of the Hammersmith and other nurseries, may be known in the winter season by the light green or greyish colour of the bark of its young shoots; by its larger, paler-coloured, and comparatively rugose leaves, doubly or coarsely serrated; and by its more compact habit of growth. The flowers of this sort are also on longer peduncles, resembling those of a cherry; while the flowers of *C.* jap. múltiplex, the *A*mýgdalus pùmila or double dwarf almond of the nurseries, have much shorter peduncles, and are sometimes nearly sessile, giving the plant more the appearance of a *P*rùnus than that of a *C*érasus. The *C.* japónica múltiplex has been in cultivation in British gardens, under the name of *A*mýgdalus pùmila, since the days of Bishop Compton; and, though it is stated in books to have been introduced from Africa, there can be little doubt of its being of Asiatic origin. The great confusion which exists respecting these two plants, in botanical works, has induced us to examine, with particular attention, the plants of them that are in the Horticultural Society's Garden, and in the Hammersmith Nursery. In the former garden, there was (June 10. 1837) a *C*érasus japónica in its single state, but not in its double state; the plant bearing the name of *C.* japónica flòre plèno being unquestionably the *C.* sinénsis described below, the *P*rùnus japónica of the nurseries. In the Hammersmith Nursery, there were then some dozens of plants of *C.* japónica múltiplex, there called *A*mýgdalus pùmila, or the double dwarf almond, growing in parallel nursery lines, with some dozens of plants of *C.* sinénsis, there called *P*rùnus japónica, or the double Chinese almond. We have considered it necessary to be thus particular, to justify us for having deviated from the *Bot. Mag.* and *Bot. Reg.*

### 19. *C.* SINE'NSIS *G. Don.* The Chinese Cherry.

*Identification.* Don's Mill., 2. p. 514.
*Synonyme.* *P*rùnus japónica *Ker* in *Bot. Reg.* t. 27.
*Engravings.* Bot. Reg., t. 27.; and our *fig.* 469.

*Spec. Char., &c.* Leaves ovate-lanceolate, doubly serrated, wrinkled from veins beneath. Peduncles sub-aggregate. (*Don's Mill.*) A highly ornamental low shrub. China. Height 2 ft. to 3 ft. Introduced in 1810. Flowers semi-double, red above, and white underneath, produced in great profusion on the preceding year's branches; April and May.

There is no single state of this species in Britain, but there was in 1836 a plant of the double variety against a wall in the Hort. Soc. Garden, named *C.* japónica flòre plèno; and, as noticed under the preceding species, there were many plants in the Hammersmith Nursery, under the name of *P.* japónica, or the double Chinese almond. The plant is somewhat more tender than *C.* j. múltiplex, which is well known in gardens as a hardy border shrub; and, except in favourable situations, it requires to be planted against a wall. Though *C.* sinénsis and *C.* japónica are quite distinct, there is nothing in that distinctness, as it appears to us, to determine that they are not varieties of the same species.

469 Cérasus sinénsis.

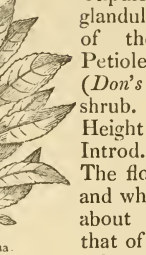
### 20. *C.* SALI'CINA *G. Don.* The Willow-*leaved* Cherry Tree

*Identification.* Don's Mill., 2. p. 514.
*Synonymes.* *P*rùnus salícina *Lindl.* in *Hort. Trans.*; Ching-Cho-Lee, or Tung-Choh-Lee, *Chinese*
*Engraving.* *Fig.* 470. from a specimen in the herbarium of Dr. Lindley.

*Spec. Char., &c.* Flowers usually solitary, shorter than the leaves. Leaves

470. Cérasus salicina.

obovate, acuminated, glandularly serrated, glabrous Stipules subulate, glandular, length of the petiole. Petiole glandless. (*Don's Mill.*) A shrub. China. Height 4 ft. to 6 ft. Introd. in 1822. The flowers small, and white. Drupe about the size of that of the myrobalan plum.



471. Cérasus *Púddum*.

*Species belonging to the preceding Subdivision* (B.), *not yet introduced.* — C. Phóshia *Hamilt.*, Prùnus cerasòides *D. Don.*, Cérasus *Púddum* Roxb. (Wall. Pl. Rar., ii. t. 143.; and our *fig.* 471.), is a native of Nepal, producing fruit like that of the common cherry, and wood which is considered valuable as timber. The flowers are of a pale rose colour, and the tree grows to the height of 20 or 30 feet. C. *glandulòsa*, C. *áspera*, and C. *incìsa* Lois., are Japan shrubs, with rose-colonred flowers, described by Thunberg; and C. *hùmilis* Moris., a native of Sardinia.

## § ii. Pàdi vèri Ser. *The true Bird-Cherry Kinds of* Cérasus.

*Sect. Char.* Flowers produced upon the shoots of the same year's growth as the flowers; the latter disposed racemosely. Leaves deciduous.

### A. *Species of Bird-Cherry Trees already in Cultivation in Britain.*

♀ 21. *C. MAHA'LEB* Mill. The Mahaleb, *or perfumed*, Cherry Tree.

*Identification.* Mill. Dict., No. 4.; Dec. Prod., 2. p. 539.; Don's Mill., 2. p. 514.
*Synonymes.* Prùnus *Mahàleb* L. Sp. 678.; Bois de Sainte Lucie, or Prunier odorant, *Fr.*; Mahalebs-kirsche, *Ger.*; Ciliegio canino, *Ital.*
*Engravings.* N. Du Ham., 5. t. 2.; Jacq. Fl. Austr., t. 227.; the plate of this species in Arb. Brit. 1st edit., vol. v.; and our *fig.* 472.

*Spec. Char., &c.* Leaves cordately ovate, denticulate, glanded, curved. Flowers in leafy subcorymbose racemes. Fruit black, between ovate and round. (*Dec. Prod.*) A small tree. Middle and South of Europe; common in France, especially in the mountainous districts; very common near St. Lucie, whence the French name. Height 10 ft. to 20 ft.; in British gardens 20 ft. to 30 ft. Introduced in 1714. Flowers white; April and May. Drupe black; ripe in July.

*Varieties.* Besides one with variegated leaves, there are: —
♀ C. M. 2 *frúctu flàvo* Hort. — Fruit yellow. There is a plant of this variety in the garden of the Horticultural Society.
♀ C. M. 3 *latifòlium* Hort. — Leaves broader than in the species.

A handsome small tree, with a white bark, and numerous branches. The leaves somewhat resembling those of the common apricot, but of a paler green. The wood, the leaves, the flowers, and the fruit, are powerfully scented; the flowers so much so as not to be supportable in a room. The wood is hard, brown, veined, and susceptible of a high polish. Its smell is less powerful, and more agreeable, when it is dry, than when the sap is in it. In a dry state it weighs 59 lb. 4 oz. per cubic foot. In France, it is much sought after by cabinetmakers, on account of its fragrance, hardness, and the fine polish which it receives. In Austria it is used for forming the twisted tubes of tobacco pipes. In France the mahaleb is used as a stock on which to graft the different kinds of fruit-bearing cherries: for which it has the advantages of growing on a very poor soil; of coming into sap 15 days later than

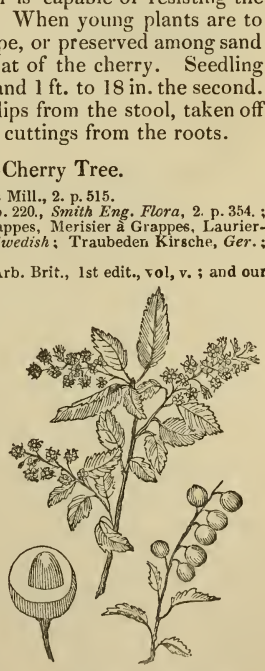
472. Cérasus *Mahàleb.*

the common wild cherry, by which means the grafting season is prolonged; and, lastly, of dwarfing the plants grafted on it. In British gardens, it is partly used for this purpose, but principally as an ornamental shrub or low tree. As in the case of other dwarf species of a genus which will unite to a tall robust-growing species, the mahaleb, when grafted on the common wild cherry (*C.* sylvéstris), grows to a larger tree than when on its own roots. The mahaleb will grow in any poor soil that is dry, even in the most arid sands and naked chalks; and, as it forms a low bushy tree which is capable of resisting the wind, it may be planted in an exposed situation. When young plants are to be raised from seed, the fruit is sown as soon as ripe, or preserved among sand till the following spring, in the same manner as that of the cherry. Seedling plants generally grow 1 ft. in length the first year, and 1 ft. to 18 in. the second. The tree may also be propagated by layers ; by slips from the stool, taken off with a few roots attached ; and by suckers, or by cuttings from the roots.

### ☨ 22. *C. PA'DUS Dec.* The Bird-Cherry Tree.

*Identification.* Dec. Fl. Fr., 4. p. 580. ; Prod., 2. p. 539. ; Don's Mill., 2. p. 515.
*Synonymes.* *Prùnus Pàdus Lin. Sp.* 677., *Hook. Brit. Flora*, p. 220., *Smith Eng. Flora*, 2. p. 354. ; Bird Cherry, Fowl Cherry ; Hag-berry, *Scot.* ; Cerasier à Grappes, Merisier à Grappes, Laurier-Putier, or Putiet, faux Bois de Ste. Lucie, *Fr.* ; Hag-bier, *Swedish* ; Traubeden Kirsche, *Ger.* ; Ciliegio ramoso, *Ital.*
*Engravings.* Eng. Bot., t. 1383. ; the plate of this species in Arb. Brit., 1st edit., vol, v. ; and our *fig.* 474.

*Spec. Char., &c.* Leaves ovate-lanceolate, somewhat acuminate, thin, serrulate, with the teeth rather spreading. Racemes long, leafy. Fruit round, bitter. (*Dec. Prod.*) A low tree. Indigenous in most parts of Central Europe, and as far north as Lapland. Height 12 ft. to 40 ft. Flowers white ; April and May. Drupe black ; ripe in July. Decaying leaves greenish yellow, or reddish. Naked young wood purplish, with white spots.



473. Cérasus Pàdus rùbra.

*Varieties.*

- ☨ C. P. 1 *vulgàris* Ser. *C. Pàdus Dec., N. Du Ham.* v. t. 1. — This kind has large flowers loosely disposed upon long pedicels, and black fruit.
- ☨ C. P. 2 *parviflòra* Ser. (Œd. Fl. Dan., t. 205.)—This has smaller flowers, upon shorter pedicels, which are disposed more densely ; and black fruit.

C. P. 3 *rùbra* Ser. (Our *fig.* 473.) — This has red fruit. It is the *C. P*àdus frúctu rùbro of Dec. and of Loiseleur; and, according to *Ait. Hort. Kew.*, 2d ed. p. 299., it is the *P*rùnus rùbra of *Willd. Arb.*, 237. t. 4. f. 2.

ϒ C. P. 4 *bracteòsa* Ser. *P*àdus racemòsus *Hort.* — A very beautiful variety, distinguished by its long racemes of flowers, with their pedicels furnished with long bracteas at the points of the shoots, by which the latter are bent down, both when in blossom and when the fruit is ripe, so as to give the whole tree a pendulous appearance.

A very handsome small tree or large bush. The leaves are finely serrated, smooth, and somewhat glaucous; and their scent, when bruised, resembles that of rue. The flowers are of a pure white, in copious, long, terminal racemes, making an elegant appearance in spring, but scarcely lasting a fort-

474. *C*érasus *P*àdus.

night. The fruit is small, black, austere, and bitter, with a large corrugated nut. "Birds of several kinds soon devour this fruit, which is nauseous, and probably dangerous to mankind; though, perhaps, like that of the cherry laurel, not of so deadly a quality as the essential oil or distilled water of the leaves." (*Eng. Flora*, ii. p. 354.) The tree grows rapidly when young, attaining the height of 10 or 12 feet in 5 or 6 years; and, as it has a loose head, and bears pruning, it allows the grass to grow under it. The wood is hard and yellowish, and, in a green state, it has a disagreeable bitter odour and taste; whence the French name *putiet*, from *puer*. It is much sought after in France by the cabinetmakers and turners, who increase the beauty of its veining by sawing out the boards diagonally, that is, obliquely across the trunk, instead of parallel with its length. The fruit, though nauseous to the taste when eaten fresh from the tree, gives an agreeable flavour to brandy; and is sometimes added to home-made wines. In Sweden and Lapland, and also in some parts of Russia, the bruised fruit is fermented, and a powerful spirit distilled from it. In Britain, the principal use of the *C*érasus *P*àdus is as an ornamental tree; and few make a finer appearance than it does, either when in flower, in April and May; or in August, when covered with its pendent racemes of black fruit. It comes into flower a little before the ornamental crab trees, and about the same time as the *S*órbus aucupària and the *A*cer *p*latanòïdes. The bird cherry prefers a dry soil; but it will not thrive on such poor ground as the perfumed cherry. It will grow in almost any situation; but, to attain a timber-like size, it requires the shelter either of a favourable locality, or of adjoining trees. The species is propagated by seeds, which should be treated

in all respects like those of *C. Mahàleb.* The red-fruited variety will generally come true from seed; as, doubtless, will the early-flowering and late-flowering varieties, which may be observed in copse woods where this tree abounds. *C. P.* bracteòsa *Ser.*, which is a very remarkable variety, and one which deserves a place in every collection, both on account of its large racemes of flowers and its fruit, will be continued with most certainty by grafting or budding. The leaves are more infested and injured by the larvæ of moths and butterflies, than those of any other European tree or shrub.

♀ 23. *C.* VIRGINIA'NA *Michx.* The Virginian Bird-Cherry Tree.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 285.; Dec. Prod., 2. p. 539.; Don's Mill., 2. p. 515.
*Synonymes.* *P*rùnus rùbra *Ait. Hort. Kew.* 1st ed. 2. p. 162., *Willd. Abb.* 238. t. 5. f. 1.; *P.* argùta *Bigelow* in Litt.; Cerisier de Virginie, *Fr.*; Virginische Kirsche, *Ger.*; Wild Cherry Tree, *Amer.*
*Engravings.* Willd. Abb., 238. t. 5. f. 1.; Michx. Fl. Arb. Amer., 2. t. 88.; and our *fig.* 475.

*Spec. Char., &c.* Leaves oblong, acuminate, doubly toothed, smooth; the petiole bearing about 4 glands. Racemes straight, petals round. Fruit red. Different from the *P*rùnus virginiàna of Miller, which is *C.* (v.) serótina. (*Dec. Prod.*) A tree attaining a large size. Virginia, Carolina, and Canada. Height, in England, 30 ft. to 40 ft.; in some parts of North America, 80 ft. to 100 ft. Introd. 1724. Flowers white; May. Drupe red; ripe in July. Leaves remaining on late in the season, and dropping, green. Naked young wood slender, purplish, but not spotted with white like *C. P*àdus.

Readily distinguished from *C*érasus *P*àdus by the slender drooping character of its branches. The fruit is frequently ripened in the neighbourhood of London, and plants in copse woods, which have risen from selfsown seeds, are to be met with in different parts of Surrey. The wood of the Virginia bird cherry is of a light red tint, which deepens with age. It is compact, fine-grained, and takes a brilliant polish; it is also not liable to warp when perfectly seasoned. In America, it is extensively used by cabinetmakers for every species of furniture. In Europe, *C.* virginiàna is planted solely as an ornamental tree; and, as such, it well deserves a place in every collection. It should be planted in every shrubbery or wood where it is desirable to attract frugivorous singing birds. For soil, situation, propagation, culture, &c., see *C. P*àdus.

475. *Cérasus virginiàna.*

♀ 24. *C.* (v.) SERO'TINA *Lois.* The late-*flowering*, *or American*, Bird-Cherry Tree.

*Identification.* Lois. in Du Ham., 5. p. 3.; Dec. Prod., 2. p. 540.; Don's Mill., 2. p. 515.
*Synonymes.* *P*rùnus serótina *Willd. Abb.* 239.; *P.* virginiàna *Mill. Dict.* No. 2.
*Engravings.* Willd. Abb., 239. t. 5. f. 2.; Wats. Dend. Brit., t. 48.; and our *figs.* 476, 477.

*Spec. Char., &c.* Leaves ovate-lanceolate, rather coriaceous, glossy, serrated; the teeth imbricate, very numerous, and the lowest ones indistinctly glanded. Midrib downy at its base. Floral leaves narrowed at the base. Racemes loose. Fruit black. (*Dec. Prod.*) A middle-sized tree. A native of North America, in Canada and Newfoundland. Height 10 ft. to 20 ft. Introd. 1629. Flowers white; May and June. Drupe black; ripe in August. Leaves retained late, and dropping green. Naked young wood slender, purplish.

476. *Cérasus* (v.) *serótina.*

*Variety.*

ϒ C. *s.* 2 *retùsa* Ser. — Leaves obovate, round, very obtuse, almost retuse, slightly villose beneath ; midrib hairy above and below. A native of South America.

477. Cérasus (v.) serótina.

C. (v.) serótina so closely resembles *C.* virginiàna, that we have no doubt whatever of their being one and the same species.

ϒ 25. *C.* MO'LLIS. *Doug.* The soft Bird-Cherry Tree.

*Identification.* Dougl. MSS. ; Hook. Fl. Bor. Amer., 1. 169. ; Don's Mill., 2. p. 515.
*Engraving.* Our *fig.* 478., from a specimen in the British Museum.

*Spec. Char., &c.* Racemes short, pubescently tomentose, as well as the calyxes ; calycine segments reflexed ; leaves obovate oblong, crenated, pubescent beneath ; fruit ovate. (*Don's Mill.*) A tree. America, near the mouth of the Columbia, and on subalpine hills, near the source of the river. Height 12 ft. to 24 ft. Introd. 1838. Flowers white. Naked young wood dark brown and downy, and the general habit said to be that of *C.* pubéscens.

478. *C.* mollis.

Young plants have been raised in the Hort. Soc. Garden, from seeds sent home by Douglas.

479. Cérasus Capóllin.

ϒ ♀ 26. *C.* CAPO'LLIN Dec. The Capollin Bird-Cherry Tree.

*Identification.* Dec. Prod., 2. p. 539. ; Don's Mill., 2. p. 515.
*Synonymes.* Prùnus virginiàna *Flor. Mexic. Ic.* and *MSS.* ; *P.* canadénsis *Moc. et Sesse Pl. Mex. Ic. ined., Hern. Mex.* 95.

*Engravings.* Fl. Mex. Icon. ined.; Pl. Mex. Icon. ined.; Hern. Mex. Icon., 95.; and our *fig.* 479.

*Spec. Char., &c.* Leaves lanceolate, serrated, and glabrous, resembling in form, and nearly in size, those of *S*àlix frágilis. Racemes lateral and terminal. Fruit globose, resembling, in form and colour, that of *C.* sylvéstis. (*Dec. Prod.*) A handsome sub-evergreen low tree or shrub. Mexico, in temperate and cold places. Height 6 ft. to 12 ft. Introduced in 1820. Flowers white; May. Drupe red; ripe in August.

The plant bearing this name in the Hort. Soc. Garden has leaves broader than those of *S*àlix frágilis; and, taken altogether, it is of more luxuriant growth than *C.* virginiàna. It is, however, less hardy as a plant in the open garden, and was killed to the ground in the winter of 1837–8. In favourable situations, however, it is a very desirable species, being a remarkably free flowerer, and ripening abundance of fruit, which have stones as large as those of the wild cherry.

27. *C.* NEPALE'NSIS *Ser.* The Nepal Bird-Cherry Tree.

*Identification.* Seringe in Dec. Prod., 2. p. 540.; Don's Mill., 2. p. 515.
*Synonyme.* *P*rùnus glaucifòlius *Wall. MSS.*
*Engraving.* Our *fig.* 480., from a specimen in Dr. Lindley's herbarium.

*Spec. Char., &c.* Leaves resembling in form those of *S*àlix frágilis; long, lanceolate, acuminate, serrate, with blunt teeth, glabrous, whitish beneath; the veins much reticulated; and the axils of the larger of them hairy. Peduncle short, and, as well as the rachis, slightly villose. Calyx glabrous. (*Dec. Prod.*) A deciduous shrub or low tree. Nepal. Height 6 ft. to 12 ft. Introd. 1820. Flowers white; May. Drupe ?.

480. Cérasus nepalénsis.

B. *Species of Bird-Cherry Trees which have not yet been introduced, or of which we have not seen Plants.*

C. *acuminàta* Wall. (Pl. Rar. Asiat., ii. p. 78. t. 181.; and our *fig.* 481.) is a Nepal tree, growing to the height of 20 or 30 feet, with the flowers in axillary racemes, and nodding, a little shorter than the leaves.

C. *emarginàta* Dougl. (*Hook. Fl. Bor. Amer.*, p. 169.) is a shrub, growing to the height of 6 or 8 feet, with its flowers in corymbose racemes; having oval, serrulated, glabrous leaves; and globose fruit, astringent to the taste. The leaves are 2 in. long; the flowers are white; and the wood red, with white spots. It is found wild about the upper part of the Columbia River, especially about the Kettle Falls.

481. Cérasus acuminàta.

C. *capricìda* G. Don. *The Goat-killing Bird Cherry.* *P*rùnus capricìda *Wall.*; *P.* undulàta *Hamilt.* in *D. Don's Prod. Nepal.* p. 239.; *C.* undulàta *Dec, Prod.* ii. p. 540. — Leaves elliptic, acuminated, coriaceous, glabrous, quite entire, with undulately curled margins. Petioles glandulous. Racemes either solitary or aggregate by threes, many-flowered, glabrous, shorter than the leaves. (*Don's Mill.*, ii. p. 515.) A handsome showy tree, probably evergreen, a native of Nepal, at Narainhetty; where the leaves are found to contain so large a quantity of prussic acid as to kill the goats which browse upon them. Royle seems to consider *C.* undulàta and *C.* capricìda as distinct species; and

he observes that these, and "*C.* cornùta, remarkable for its pod-like monstrosity, are handsome showy trees, growing on lofty mountains, and worthy of introduction into England." (*Royle's Illust.*, p. 205.)

*C.* canadénsis *Lois.*, *C.* ellíptica *Lois.*, *C.* paniculàta *Lois.*, and some other hardy species, are mentioned in our first edition.

## § iii. *Laurocérasi. The Laurel-Cherry Trees.*

*Sect. Char.* Evergreen. Flowers in racemes.

♠ ♀ 28. *C.* LUSITA'NICA *Lois.* The Portugal *Laurel*-Cherry, *or common Portugal Laurel.*

*Identification.* Lois. in N. Du Ham., 5. p. 5.; Dec. Prod., 2. p. 540.; Don's Mill., 2. p. 516.
*Synonymes.* Prùnus lusitánica *Lin. Sp.* 678.; the Cherry Bay; Cerisier Laurier du Portugal, *Fr.*; Azareiro, *Portuguese.*
*Engravings.* Mill. Ic., 131. t. 196. f. 1.; Dill. Elth., 193. t. 159. f. 193.; the plate of the species in Arb. Brit., 1st edit., vol. v.; and our *figs.* 483, 484.

*Spec. Char., &c.* Evergreen. Leaves coriaceous, ovate-lanceolate, serrate, glandless. Racemes upright, axillary, longer than the leaves. (*Dec. Prod.*) An evergreen low tree. Portugal, and the Azores. Height 10 ft. to 20 ft.; in British gardens sometimes 30 ft. Introduced in 1648. Flowers white; June. Drupe dark purple; ripe in September. Young wood purplish black.

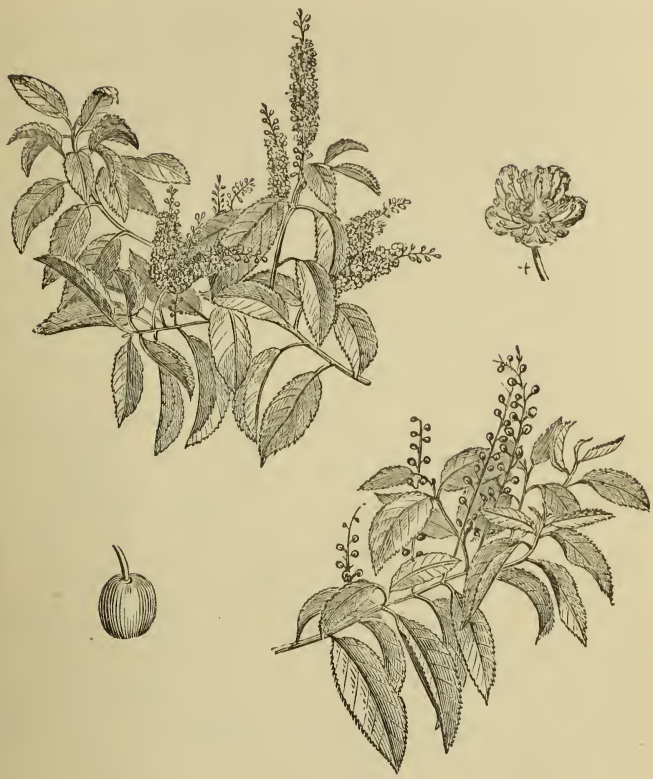
482. Cérasus l. *Híxa.*

*Variety.*

♠ ♀ C. *l.* 2 Híxa *Ser.* Prùnus *Híxa* Broussonet; *P.* multiglandulòsa *Cav.*; *C. Híxa* Webb et Bert. Hist. Can. t. 38. (Our *fig.* 482.) — Leaves larger, with their lowest teeth glanded. Racemes elongate. Flowers more loosely disposed. Spontaneous in the islands of Teneriffe, Grand Canary, and Palma. Mr. P. B. Webb informs us that this tree, in its native localities, attains the height of 60 or 70 feet.

The Portugal laurel is generally seen as an immense bush, but when trained up to a single stem it forms a very handsome tree with a conical head. It is not of rapid growth, seldom making shoots more than 9 or 10 inches in length; but, when planted in good free soil, and trained to a single stem, plants, in the neighbourhood of London, will reach the height of from 12 ft. to 15 ft. in 10 years. It is generally planted solely as an ornamental evergreen; but sometimes hedges are formed of it in nursery-grounds and flower-gardens. The berries are greedily eaten by birds, and form a favourite food for pheasants. What renders the tree particularly valuable, Miller

483. Cérasus lusitanica



484. Cérasus lusitánica.

observes, is its being "so very hardy as to defy the severest cold of this country; for, in the hard frost of 1740, when almost every other evergreen tree and shrub was severely pinched, the Portugal laurels retained their verdure, and seemed to have felt no injury." In the winter of 1837–8, it was severely hurt in all low moist situations in the climate of London; but in dry gravelly soil, there, and in most parts of England, it escaped uninjured. In British nurseries, it is propagated by seeds, which, before and after sowing, are treated like those of the common wild cherry (*C.* sylvéstris), or those of the bird cherry (*C. P*àdus).

♃ ✱ 29. *C.* LAUROCE'RASUS *Lois.* The Laurel-Cherry, *or common Laurel.*

*Identification.* Lois. in Du Ham., 5. p. 6.; Dec. Prod., 2. p. 540.; Don's Mill., 2. p. 516.
*Synonymes.* *P*rùnus Laurocérasus *Lin. Sp.* 678.; Cherry Bay, Cherry Laurel; Laurier au Lait, Laurier Cerisier, Laurier Amandier, *Fr.*; Kirsche Lorbeer, *Ger.*; Lauro di Trebisonda, *Ital.*
*Engravings.* Blackw. Herb., t. 512.; Du Ham. Arb., 1. p. 346. t. 133.; and our *fig.* 485.

*Spec. Char., &c.* Evergreen. Leaves coriaceous, ovate-lanceolate, remotely serrate, bearing upon the under surface of the disk 2—4 glands. Racemes shorter than the leaves Fruit ovate-acute. (*Dec. Prod.*) A large, rambling, evergreen, sub-prostrate shrub. Trebisond in Asia Minor; and found in Caucasus, Persia, and the Crimea. Height 6 ft. to 20 ft. Introduced in 1629. Flowers white; April and May. Drupe dark purple; ripe in October. Young shoots of a light green.

*Varieties.*

✱ C. *L.* 2 *variegàta* Hort.—Leaves variegated with either white or yellow.

♃ C. *L.* 3 *angustifòlia* Hort., with leaves about a third part of the width of

those of the species, and a more dwarf-growing plant. A very distinct variety, which seldom, if ever, flowers. In some nurseries, it is called Hartòg*ia* capénsis, though this latter is a totally different plant.

The common laurel, though it will grow as high as the Portugal laurel, is, in its habit, decidedly a shrub, though it is occasionally seen trained to a single stem as a low tree, and in France it is grafted standard high on the common cherry for this purpose, though such plants, from the stock being deciduous, only last a year or two. The growth of the common laurel is rapid for an evergreen, being at the rate of from 1 ft. to 3 ft. a year; but, as the shoots extend in length, they do not increase proportionately in thickness, and hence they recline; so that plants with branches 30 or 40 feet in length, though gigantic in size, still retain the character of prostrate shrubs. Notwithstanding the rapid and vigorous growth of this plant in ordinary seasons, it suffers a great deal more from very severe frosts than the Portugal laurel, and is sometimes killed down to the ground, which the latter rarely is in England. In Britain, the common laurel is considered one of the most ornamental of our evergreen shrubs; and it is also used for covering walls, and for hedges, to afford shelter; for which last purpose it is extensively used in the market-gardens about Isleworth. It is also extensively used as undergrowth in sandy soil. Laurel leaves have a bitter taste, and the peculiar flavour of prussic acid, which is common to bitter almonds, and to the kernels generally of the *A*mygdàleæ. The flowers have a similar flavour; and the powdered leaves excite sneezing. The leaves, in consequence of their flavour, are used in a green state in custards, puddings, blancmange, and other culinary and confectionary articles, but always in very small quantities. Any soil tolerably dry will suit the common laurel; but, to thrive, it requires a sheltered situation, and a deep free soil. It thrives better as an undergrowth than, perhaps, any other ligneous plant, with the exception of the box and the holly.

485. *C.* Laurocérasus.

♠ ♀ 30. *C.* CAROLINIA'NA *Michx.* The Carolina Bird-Cherry Tree.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 285.; Lois. in N. du Ham., 5. p. 5.; Don's Mill., 2. p. 516.
*Synonymes.* Prùnus caroliniàna *Ait. Hort. Kew.*, 2. p. 163.; *P.* sempervìrens *Willd. Enum.*; Pàdus caroliniàna *Mill. Dict.* No. 6.; Wild Orange, *Amer.*
*Engravings.* Michx. Arb. d'Amer., 3. t. 7.; and our *fig.* 486.

*Spec. Char, &c.* Evergreen. Leaves, with the petiole short; and the disk lanceolate-oblong, mucronate, even, rather coriaceous, mostly entire. Flowers densely disposed in axillary racemes, that are shorter than the leaves. Fruit nearly globose, mucronate. (*Dec. Prod.*) An evergreen shrub or low tree; in England a tender shrub. North America, from Carolina to Florida, and the Bahama Islands. Height

486. *C.* caroliniàna.

20 ft. to 30 ft. Introduced in 1759. Flowers white; May. Drupe dark purple; ripe ?.

This tree Michaux considers as one of the most beautiful vegetable productions of the southern parts of the United States; and it is generally selected by the inhabitants to plant near their houses, not only on this account, but because it grows with rapidity, and affords an impenetrable shade. Pursh describes it as a handsome evergreen shrub, resembling *C.* lusitánica; but he says nothing of the flowers, which, from the figure in Michaux, from which ours was copied, appear to be almost without petals. Seeds are frequently imported from America, and abundance of young plants reared; but, as they are rather tender, and, north of London, would require the protection of a wall, they are very seldom seen in British gardens. The largest plant which we know of is in Hampshire, at Swallowfield, where, in 1833, it formed a bush 10 ft. high, with a head about 12 ft. in diameter, flowering and fruiting occasionally. Culture as in *C.* virginiàna, but north of London it requires the protection of a wall.

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## Sect. II. *SPIRÆE`Æ.*

## GENUS VI.

PU'RSH*IA* Dec. THE PURSHIA. *Lin. Syst.* Icosándria Monogýnia.

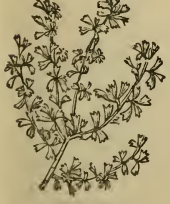
*Identification.* Dec. in Trans. of Linn. Soc., 12. p. 157.; Prod., 2. p. 541.; Lindl. in Bot. Reg. t. 1446.; Don's Mill., 2. p. 517.
*Synonyme.* *Tigàrea* Ph. Fl. Amer. Sept., 1. p. 333., not of Aublet.
*Derivation.* *Frederick Pursh* first characterised the only known species in his *Flora Americæ Septentrionalis*, and named it *Tigàrea* tridentàta. The generic name, however, having been preoccupied by Aublet, De Candolle has named the present genus after Pursh himself.

*Gen. Char.* *Calyx* 5-cleft; lobes ovate, obtuse. *Petals* 5, obovate. *Stamens* about 25, rising with the petals from the calyx. *Carpels* 1—2, ovate oblong, pubescent, tapering into the style at the apex, at length opening by a longitudinal chink. *Seed* 1, inserted in the base of the carpel. (*Don's Mill.*)

*Leaves* simple, grouped together, cuneate, 2—3-toothed at the apex, stipulate or exstipulate, deciduous. *Flowers* yellow. — Shrub, of which there is only one species known.

### 1. P. TRIDENTA`TA *Dec.* The 3-toothed-*leaved* Purshia.

*Identification.* Dec. in Lin. Trans., 12. p. 157.; Prod., 2. p. 541.
*Synonyme.* *Tigàrea* tridentàta *Ph. Fl. Amer. Sept.*, 1. p. 333. t. 15., not of Aublet.
*Engravings.* Ph. Fl. Amer. Sept., t. 15.; Bot. Reg., t. 1446.; and our *figs.* 487, 488.



487. P. tridentàta.

*Spec. Char., &c.* Leaves obcuneate, 3-dentate, crowded on the points of the shoots, hairy above, and tomentose beneath. Flowers terminal on short peduncles. (*Ph. Fl. Amer.*) A spreading shrub. North America, on pastures by the river Columbia. Height 2 ft. to 3 ft. Introduced in 1826. Flowers yellow; July. Carpels ?.

488. P. tridentàta

Almost the only shrub to be seen through an immense tract of barren sandy soil, from the head source of the Missouri, to the Falls of the Columbia. The plants in the London gardens were all killed in the winter of 1837–8.

## Genus VII.

### KE'RRIA Dec. The Kerria. *Lin. Syst.* Icosándria Polygýnia.

*Identification.* Dec. in Trans. of Lin. Soc., 12. p. 156.; Prod., 2. p. 541.; Don's Mill., 2. p. 517.
*Synonymes.* Rubus *L.*, Córchorus *Thunb.*, Spiræ'a *Camb.*
*Derivation.* Named in honour of *W. Ker*, a collector of plants for the Kew Gardens.

*Gen. Char.* *Calyx* 5-cleft; lobes ovate, 3 of which are obtuse, and the other two callously mucronate at the apex; imbricate in æstivation. *Petals* 5, orbicular. *Stamens* about 20, arising from the calyx with the petals, exserted. *Carpels* 5—8, globose, free, glabrous, each ending in a filiform style. *Seed* solitary. (*Don's Mill.*)

*Leaves* simple, ovate, lanceolate, alternate, stipulate, deciduous; coarsely and unequally serrated, feather-nerved, conduplicate. *Flowers* yellow.

#### 1. K. japo'nica *Dec.* The Japan Kerria.

*Identification.* Dec. in Trans. of Lin. Soc., 12. p. 156.; Prod., 2. p. 541.
*Synonymes.* Rubus japónicus *Lin. Mant.* 245.; Córchorus japónicus *Thunb. Fl. Jap.* 227.; Spiræ'a japónica *Camb. Ann. Sci. Nat.* 1. p. 389.; Spirée du Japon, *Fr.*
*Engravings.* Swt. Brit. Fl. Gard., 2d ser. t. 337.; and our *fig.* 489.

*Spec. Char., &c.* Leaves ovate, lanceolate, coarsely and unequally serrated, feather-nerved; stipules linear, subulate. A deciduous shrub. Japan. Height 3 ft. to 5 ft. Introduced in 1835. Flowers yellow; March to June, and often all the summer. Carpels ?.

*Variety.*

K. j. 2 *flòre plèno* (Bot. Reg., t. 587.; Bot. Mag., t. 1296.; and our *fig.* 490.)—Flowers double. Introduced in 1700, and in very general culture in British gardens.

489. Kérria japónica.

490. Kérria j. flòre plèno.

It has soft, and not very persistent, wood, clothed with a smooth greenish bark; twig-like branches; leaves that are ovate-lanceolate, and serrated with large and unequal teeth, feather-veined, and concave on the upper surface; stipules that are linear-subulate. The single-flowered variety was, until 1835, only known through a solitary specimen received from Thunberg by Linnæus, and preserved in the herbarium of that great botanist, now in the possession of the Linnæan Society. It was after examining this specimen that De Candolle removed it from the genus Córchorus, and formed that of Kérria. The double variety is generally planted against a wall, more especially north of London. It is easily and rapidly propagated by its suckers, and grows freely in any common soil.

## GENUS VIII.

### SPIRÆ`A *L.* THE SPIRÆA. *Lin. Syst.* Icosándria Di-Pentagýnia.

*Identification.* Lin. Gen.. No. 630.; Gærtn. Fruct., 1. p. 337. t. 69.; Dec. Prod., 2. p. 541.; Don's Mill., 2. p. 517.
*Synonymes.* Spiræ`a sp. *Cambessedes Mon. Spir.* in *Ann. Sci. Nat.* 1. p. 227.; Spirée, *Fr.*; Spierstaude, *Ger.*
*Derivation.* From *speira*, a cord, in reference to the supposed flexibility of the branches of some of the species; or, according to some, from *speiraō*, to wreath; in allusion to the fitness of the flowers to be twisted into garlands. *Spiræon* is Pliny's name for a plant the blossoms of which were used, in his time, for making garlands; but that plant is thought by some to have been the *Vibúrnum* Lantàna.

*Gen. Char.* *Calyx* 5-cleft, permanent. *Stamens* 10—50, inserted in the torus, lining the calyx along with the petals. *Carpels* solitary, or several together, rarely connected at the base, ending in short points, sessile, rarely stipitate. *Seeds* 2—6. (*Don's Mill.*)

*Leaves* usually simple, but sometimes pinnately cut, having pinnate, or palmately ternate, nerves; alternate, stipulate, deciduous. *Flowers* white or reddish, never yellow. — Shrubs, low, deciduous. Europe, Asia, America.

Generally of erect growth, with conspicuous flowers of considerable elegance and beauty. The naked young wood, in almost all the species, is of a cinnamon brown; and, in those kinds in which the shoots are numerous so as to produce a mass, the effect is conspicuous in the winter season. They are all readily propagated by suckers, which, in general, they produce in abundance, and they will grow in any common soil.

### § i. *Physocárpos* Camb.

*Derivation.* From *phusa*, a bladder, and *karpos*, a fruit; in reference to the bladdery carpels.

*Sect. Char.* Ovaries connected at the base. Torus lining the calycine tube. Carpels bladdery, rather membranous. Ovula 2—3, fixed to the seminiferous margin of the carpel, ovoid, at first horizontal, but at length suspended. Flowers hermaphrodite, disposed in umbels. Pedicels 1-flowered. Leaves toothed, or somewhat lobed, usually stipulate. (*Don's Mill.*, p. 517.)

#### 1. *S.* OPULIFO`LIA *L.* The Guelder-Rose-leaved Spiræa, *or Virginian Guelder Rose.*

*Identification.* Lin. Sp., 702.; Dec. Prod., 2. p. 542.; Don's Mill., 2. p. 517.
*Synonymes.* Nine Bark, *Amer.*; Evonimo del Canadà, *Ital.*
*Engravings.* N. Du Ham., 6. t. 14.; and our *figs.* 491, 492.

*Spec. Char., &c.* Leaves lobed, or 3-lobed, and partaking of an ovate figure, doubly serrated, petioled, and many of them stipuled. Flowers white, numerous, disposed in stalked hemispherical corymbs; the pedicel of each flower slender and glabrous. Sepals spreading. Torus wholly connate with the tube of the calyx. Ovaries connate with each other at the base. Ovules in each 2—3, affixed to the margin, egg-shaped, at first horizontal, at length the one pendulous, the rest ascending. Carpels bladdery, rather membranaceous, large and diverging. Seeds obovate, glossy, and yellow. (*Dec. Prod.*) A large shrub. North America, from Canada to Carolina. Height 8 ft. to 10 ft. Introd. in 1690. Flowers

491. *S. opulifòlia.*

492. *S. opulifòlia*

white ; June and July. Capsule inflated red ; ripe in September. Decaying leaves purplish red, mixed with yellow. Naked young wood light brown.

Hardy, and very ornamental, from its abundance of white flowers, which are produced in corymbs, and resemble those of the Guelder rose; and from the numerous inflated reddish capsules which succeed the flowers. Propagated by division of the root; but sometimes by layers, or by cuttings of the young wood put, in autumn, in a shady border, in a sandy soil.

*Varieties.*

- S. o. 2 *tomentélla* Ser. has the peduncles and calyx tomentose. (*Dec. Prod.*) It is found at the Grand Rapids of the Columbia River.
- S. o. 3 *monógyna*. *S.* monógyna *Torrey*, Don's Mill. 2. p. 518.—A native of the Rocky Mountains, where it grows to the height of 3 or 4 feet. It is considered by Sir W. J. Hooker as a variety of *S. opulifòlia*.

2. *S.* CAPITA'TA *Ph.* The capitate-*corymbed* Spiræa.

*Identification.* Ph. Fl. Amer. Sept., 1. p. 342.; Camb. Monog.; Dec. Prod., 2. p. 542.; Don's Mill., 2. p. 518.
*Synonyme.* *S.* opulifòlia var. *Hook.*
*Engraving.* Our *fig.* 349. from a specimen in the Lambertian herbarium.

*Spec. Char., &c.* Leaves ovate, doubly toothed, almost lobed; beneath reticulate and tomentose. Flowers disposed in terminal subcapitate corymbs placed on very long peduncles. Calyx tomentose. (*Dec. Prod.*) A deciduous shrub. N. America, on its eastern coast by the River Columbia. Height 4 ft. to 6 ft. Introduced in 1827. Flowers white; June and July.

493. *S.* capitata.

## § ii. *Chamæ'dryon* Ser.

*Derivation.* From *Chamæ'drys*, the name of the germander; from a similarity in the form of the leaves.

*Sect. Char.* Ovaries distinct. Torus with its base connate with the tube of the calyx, but with its tip separate. Carpels not inflated. Flowers each upon a distinct pedicel, and disposed in umbels or corymbs. Leaves entire, or toothed, without stipules. (*Dec. Prod.*, ii. p. 542.)

3. *S.* CHAMÆDRIFO'LIA *L.* The Germander-leaved Spiræa.

*Identification.* Lin. Sp., 701.; Camb. Monog.; Dec Prod., 2. p. 542.; Don's Mill., 2. p. 518.
*Synonyme.* *S.* cantoniénsis *Lour.*
*Engravings.* Pall. Fl. Ross., t. 15.; and our *fig.* 495.

*Spec. Char., &c.* Leaves ovate, cut at the tip in a serrated manner, glabrous. Flowers upon long slender pedicels, in hemispherical corymbs. Sepals veiny, reflexed. (*Dec. Prod.*) An erect shrub. Siberia, Kamtschatka, Dahuria, the N. W. coast of N. America, China, and Japan. Height 2 ft. to 8 ft. Introduced in 1789. Flowers white; June and July. Capsule reddish; ripe Sept. Naked young wood light brown.

*Varieties.* Seringe enumerates the first four of the following forms of this species; to which, we think, might be added *S. ulmifòlia*, *S.* flexuòsa, *S.* cratægifòlia, *S. betulæfòlia*, and, perhaps, some others.

- S. c. 1 *vulgàris* Camb. Monog. — Leaves with the disks broad and glabrous; the petioles ciliated.
- S. c. 2 *mèdia* Ph. Fl. Amer. Sept. i. p. 342., Camb. Monog., and our *fig.* 494.—Leaves smaller, slightly villose upon both surfaces. Flowers smaller. Wild in Canada, and upon the rocks of Dahuria.

494. *S.* c. mèdia.

- S. c. 3 *oblongifòlia* Camb. Monog. *S.* oblongifòlia *Waldst. et Kit. Pl. Hung.* iii. p. 261. t. 235. — Leaves narrower, and less serrated.
- S. c. 4 *subracemòsa* Ser. — Flowers distantly disposed along a lengthened rachis.
- S. c. 5 *incìsa* Hort. (*S.* chamædrifòlia latifòlia *Hort.*) has been raised from seeds received from Germany through Mr. Hunneman; and it appears to be only a variety of this species.

495. *S.* chamædrifòlia.

In Kamtschatka the leaves are used as a substitute for tea; and the shoots, when straight, are bored for tobacco-pipes. In its wild state, it varies exceedingly in the magnitude of the entire plant, in the largeness or smallness of its leaves, and in their being more or less cut or serrated, and more or less smooth or pubescent. A very ornamental hardy shrub, producing its corymbs of white flowers, which are tolerably large, in June and July. It is said to make beautiful garden hedges. Though the seeds ripen in England, plants can seldom be raised from them; and, as this species does not produce suckers freely, it is generally raised by layers or cuttings.

### 4. *S.* (*c.*) ULMIFO'LIA *Scop.* The Elm-leaved Spiræa.

*Identification.* Scop. Fl. Carn., ed. 2. vol. 1. p. 349.; Dec. Prod., 2. p. 542.; Don's Mill., 2. p. 518.
*Synonyme.* *S.* chamædrifòlia *Jacq. Hort. Vindob.* t. 140.
*Engravings.* Bot. Reg., t. 1222.; Bot. Cab., 1042.; and our *fig.* 496.

*Spec. Char., &c.* Leaves ovate-lanceolate, acute, flat, sharply serrated, ciliated. Flowers terminal, in rather hemispherical corymbs. Sepals reflexed. (*Dec. Prod.*) An erect shrub. Carinthia and Siberia. Height 3 ft. to 5 ft. Introduced in 1790. Flowers white; June and July. One of the handsomest species of this section.

496. *S.* (*c.*) ulmifòlia.

497. *S.* (*c.*) *u.* phyllántha.

*Variety.*

- S. (c.) u. 2 *phyllántha* Ser. (Our *fig.* 497.) — In this variety a whorl of distinct leaves, that are petioled, lanceolate, and sharply serrated, occupies the place of the sepals, and is described as being these transformed. Petals and stamens are either not present, or deformed. (*Dec. Prod.*)

### 5. *S.* (*c.*) FLEXUO'SA *Fisch.* The flexible-*branched* Spiræa.

*Identification.* Fisch. in Litt.; Camb. Monog.; Dec. Prod., 2. p. 542.; Don's Mill., 2. p. 518.
*Synonymes.* *S.* alpìna *Hort. Par.*, according to Camb. and Fisch. in Litt. 3.; *S.* sibìrica *Hort.*
*Engravings.* Camb. Monog. Spir. in Ann. Sci. Nat., 1. t. 36.; and our *fig.* 498.

*Spec. Char., &c.* Leaves lanceolate, glabrous; from the tip to the middle

498. *S.* (*c.*) flexuòsa.

dentately serrate. Flowers in corymbs. (*Dec. Prod.*) A slender-branched shrub. Native country unknown. Height 4 ft. to 6 ft. Cultivated in 1820. Flowers white; June and July. Capsule reddish; ripe in September.

*Varieties.* *S.* flexuòsa latifòlia *Hort.*; *S.* däùrica *Hort.*; *S.* *u*lmifòlia, *S.* *c*arpinifòlia, *S.* *b*etulæfòlia, in Messrs. Loddiges's collection, are identical with, or very slight variations of, this species.

6. *S.* (*c.*) CRATÆGIFO'LIA *Lk.* The Cratægus-leaved Spiræa.

*Identification.* Lk. Enum., 2. p. 40.; Dec. Prod., 2. p. 546.; Don's Mill., 2. p. 518.
*Engraving.* Our *fig.* 499.

*Spec. Char., &c.* Leaves obovate, obtuse; in the terminal part doubly serrate; glabrous, reticulate on the under surface. Flowers white, disposed in terminal compound corymbs, whose composite parts are rather capitate. (*Dec. Prod.*) An erect shrub. Native country unknown. Cultivated in 1823. Flowers white; June and July.

499. *S.* (*c.*) cratægifòlia.

500. *S.* (*c.*) *b*etulæfòlia.

7. *S.* (*c.*) *B*ETULÆFO'LIA *Pall.* The Birch-leaved Spiræa.

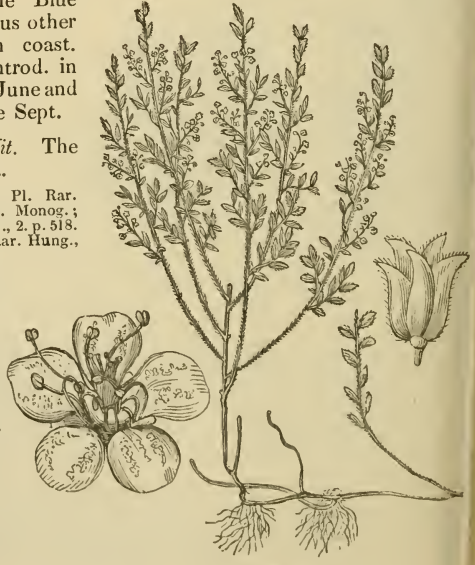
*Identification.* Pall. Fl. Ross., 1. p. 75.; Dec. Prod., 2. p. 544.; Don's Mill., 2. p. 519.
*Synonymes.* ? *S.* corymbòsa *Raf.* in *Desv. Journ.*; ? *S.* cratægifòlia *Lk. Enum.* 2. p. 42.
*Engravings.* Pall. Fl. Ross., 1. t. 16.; and our *fig.* 500.

*Spec. Char., &c.* Leaves broadly ovate, serrated, glabrous; the petiole very short. Flowers in fastigiate panicles. Carpels 5, upright, glabrous. (*Dec. Prod.*) An erect shrub. Siberia; and North America, on the Blue Mountains, and in various other places on the western coast. Height 3 ft. to 6 ft. Introd. in 1812. Flowers white; June and July. Capsule red; ripe Sept.

8. *S.* CA'NA *Waldst. et Kit.* The hoary-*leaved* Spiræa.

*Identification.* Waldst. et Kit. Pl. Rar. Hung., 3. p. 252. t. 227.; Camb. Monog.; Dec. Prod., 2. p. 542.; Don's Mill., 2. p. 518.
*Engravings.* Waldst. et Kit. Pl. Rar. Hung., 3. t. 227.; and our *fig.* 501.

*Spec. Char. &c.* Leaf ovate, of about the size of that of *S*àlix rèpens or *S.* argéntea, acute, perfectly entire, or slightly toothed, hoarily villose. Corymbs somewhat racemose; the lateral ones peduncled, of few flowers, and lax. Sepals spreading. Styles thick. Carpels divergent, rather villose. (*Dec. Prod.*) A low shrub. Croatia,



501. Spiræ'a càna.

on high rocks. Height 1 ft. to 2 ft. Introduced in 1825. Flowers white; June and July. Capsule reddish; ripe in September.

A very distinct little species approaching *S. vacciniifòlia*, *D. Don.* H. S.

### ✻ 9. *S.* TRILOBA'TA *L.* The 3-lobed-*leaved* Spiræa.

*Identification.* Lin. Mant., 244.; Camb. Monog.; Dec. Prod., 2. p. 543.
*Synonyme.* *S.* trîloba *Don's Mill.* 2. p. 518.
*Engravings.* Pall. Ross., 1. t. 17.; Wats. Dend. Brit., t. 68., as *S.* trîloba; and our *fig.* 502.

502. *S.* trilobàta.

*Spec. Char., &c.* Leaves roundish, lobed, crenated, glabrous, reticulately veined. Flowers in umbel-like corymbs. Sepals ascending. Carpels glabrous. (*Dec. Prod.*) A low erect shrub. Alps of Altai. Height 1 ft. to 2 ft. Introduced in 1801. Flowers white; May. Capsule reddish; ripe in September.

This species is very handsome, with branches spreading horizontally, and bearing, in the flowering season, numerous compact corymbs of pure white flowers; which, combined with the neat appearance of the plant, and its glaucous leaves, rounded in their outline, and yet lobed, render the species a very interesting and ornamental one.

### ✻ 10. *S.* ALPI'NA *Pall.* The *Siberian* alpine Spiræa.

*Identification.* Pall. Fl. Ross., 1. p. 82. t. 20., according to Camb. Monog.; Dec. Prod., 2. p. 543.; Don's Mill., 2. p. 518.
*Engravings.* Pall. Fl. Ross., 1. t. 20.; and our *fig.* 503.

503. *S.* alpìna.

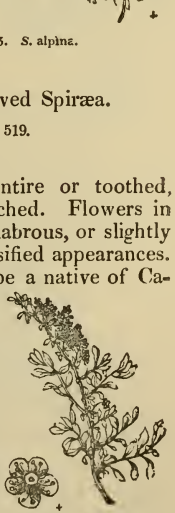
*Spec. Char., &c.* Leaves lanceolate-oblong, sessile, serrulated, glabrous; the midrib pinnately branched. Flowers in terminal, stalked, and, in many instances, leafless, corymbs. Sepals ascending. (*Dec. Prod.*) An erect shrub. Siberia, in wooded alps. Height 4 ft. to 6 ft. Introduced in 1806. Flowers white; June and July. Capsule reddish; ripe in September.

The corymbs of flowers being large in proportion to the leaves renders this species very ornamental when in bloom; and its beauty is farther heightened by the plant being of erect growth.

### ✻ 11. *S.* HYPERICIFO'LIA *Dec.* The Hypericum-leaved Spiræa.

*Identification.* Dec. Fl. Fr., 5. p. 645.; Prod., 2. p. 543.; Don's Mill., 2. p. 519.
*Synonymes.* *Hypéricum* frùtex *Hort.*; Italian May.
*Engravings.* See *Varieties.*

*Spec. Char., &c.* Leaves obovate-oblong, 3—4-nerved, entire or toothed, glabrous, slightly downy; primary veins pinnately branched. Flowers in either peduncled corymbs, or sessile umbels. Pedicels glabrous, or slightly downy. Sepals ascending. A species that presents diversified appearances. (*Dec. Prod.*) An erect shrub. Supposed by some to be a native of Canada; but Smith and Hooker think that, like most of the species of the section to which it belongs, it is only to be found wild in the Old World. Height 4 ft. to 6 ft. Introduced in 1640. Flowers white; June and July. Capsule reddish; ripe in September.


504. *S. h.* uralénsis.

*Varieties.* Seringe has characterised six forms of this species, which he describes as follows: —

✻ S. h. 1 *uralénsis* Ser. *S.* crenàta *Lin.*, *Fisch.* in Litt., and *Don's Mill.* ii. p. 519.; *S. h*ypericifòlia *Camb. Monog.* (Our *fig.* 504.) — Branches rigid,

thickish. Leaves ovate-rounded; the whole margin crenated. A native of the Ural Mountains.

S. h. 2 *Plukenetiàna* *Ser.* *S. h*ypericifòlia *Lin. Sp. Pl.* 701., and *Don's Mill.* ii. p. 519.; *S. h.* var. β *Dec. Fl. Fr.* v. p. 645. (Pluk. Phyt., t. 218. f. 5.) — Leaves perfectly entire, glabrous. Flowers in sessile corymbs. A native of Canada.

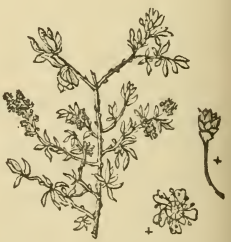
505. *S. h.* acùta.

S. h. 3 *acùta* Ser. *S.* acutifòlia *Willd. Enum.* 540., *Camb. Monog.*, and *Don's Mill.* ii. p. 519.; *S.* sibírica *Hort. Par.*, according to *Camb. Monog.*; *S.* ambígua *Pall.* (Our *fig.* 505.) — Leaves spathulate, elongate, acute, perfectly entire, or rarely 3—5-toothed, rather glabrous. Flowers in sessile corymbs.

S. h. 4 *crenàta* Ser. S. obovàta *Waldst. et Kit.?* in *Willd. Enum.* 541., *Camb. Monog.*, *Barr. Icon. Rar.* n. 1376. t. 564.; *S. h*ypericifòlia γ *Dec. Fl. Fr.* v. p. 645.; *S.* crenàta *Lin. Sp.* 701., *Camb. Monog.*, *Don's Mill.* ii. p. 519., *Lodd. Cat.* (Our *fig.* 506.) — Leaves obovate.

506. *S. h.* crenàta.

507 *S. h.* savránica.



508. *S. h.* Besseriàna.

S. h. 5 *savránica* Ser. *S.* savránica *Besser* in Litt., *Don's Mill.* ii. p. 519.; *S.* crenàta *Pall. Fl. Ross.* i. p. 35. t. 19.; *S. h*ypericifòlia var. β longifòlia *Led. Fl. Ross. Alt. Ill.* t. 429. (Our *fig.* 507.) — All parts pubescent. Leaves entire, or, at the tip, toothed. Flowers minute, disposed in dense terminal corymbs. It is wild about Barnaoul, and in Podolia.

S. h. 6 *Besseriàna* *Ser.* *S.* crenàta *Besser* in Litt.; *S.* savránica β Besseriàna Don's Mill. ii. p. 519. (Lodd. Bot. Cab., t. 1252; and our *fig.* 508.)—All parts rather glabrous. Leaves mostly entire. Flowers disposed in rather lax terminal corymbs. A native of Podolia and Caucasus.

*Other Varieties or Synonymes.* The following kinds, in Messrs. Loddiges's collection, and in the Hort. Soc. Garden, appear to be either identical with, or varieties of, *S. h*ypericifòlia: — *S.* infléxa *Wendland* (Hort. Soc. Gard.), *S.* obovàta *Wendland* (Hort. Soc. Gard.), *S.* argéntea, *S.* cuneàta, *S.* nàna, *S.* alpìna, *S.* acutifòlia, *S.* decúmbens.

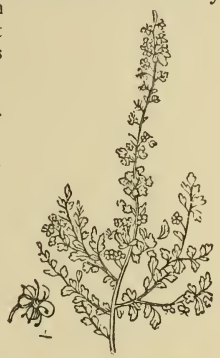
This species has small hard stems, with numerous side branches, clothed with a dark green bark, and with numerous wedge-shaped leaves, like those of St. John's wort, with glands in their substance, which give them the appearance of being punctured on the surface; whence the name. The flowers are

produced in great abundance; and, when the shrub is allowed space to expand on every side, it forms a very beautiful bush in the flowering season. It makes handsome garden hedges, and will bear the shears, which were formerly applied to it, to shape it into artificial forms, when topiary work was fashionable in garden scenery. It is readily propagated by layers, or by detaching its suckers.

12. *S.* (*H.*) THALICTRŌI'DES *Pall.* The Meadow-Rue-*leaved* Spiræa.

*Identification.* Pall. Fl. Ross., 1. p. 34.; Dec. Prod., 2. p. 543.; Don's Mill., 2. p. 518.
*Synonymes.* *S.* aquilegifōlia *Pall. Itin.* 3. App. 734. No. 94.; *S.* hypericifōlia var. flāva; and *S.* alpina latifōlia.
*Engravings.* Pall. Fl. Ross., 1. t. 18.; and our *fig.* 509.

*Spec. Char., &c.* Leaves obovate, obtuse, indistinctly 3-lobed, inconspicuously 3-nerved, glaucous beneath. Flowers in lateral sessile umbels. (*Dec. Prod.*) A low erect shrub. Alps of Dahuria. Height 1 ft. to 3 ft. Introduced in 1816. Flowers white; May and June. Capsule reddish; ripe in September.


509. *S.* (*h.*) thalictrōides.

13. *S.* CUNEIFO'LIA *Wall.* The wedge-leaved Spiræa.

*Identification.* Wall. Cat., 699.; Bot. Reg. M. Chron. 839, No. 87.
*Synonymes.* *S.* canéscens; Don Prod.; Don's Mill., 2. p. 519.; *S.* argéntea *Hort.*
*Engraving.* Our *fig.* 510.

*Spec. Char., &c.* Leaves oval or obovate, obtuse, stalked, quite entire, villous; corymbs crowded, and as well as the branches tomentose. (*Don's Mill.*) An erect-branched canescent shrub, with the habit of *S.* hypericifōlia. Nepal, at Sirinagur. Height ?. Introduced in 1837. Flowers white, downy, in close corymbose panicles.

The leaves are small, thick, downy, wedge-shaped, and either crenated near the point, or undivided; they are bright green on the upper side, and glaucous beneath, with nothing of a canescent appearance, which is only visible when they are dried.

510. *S.* cuneifō'lia.

14. *S.* PIKOWIE'NSIS *Besser.* The Pikow Spiræa.

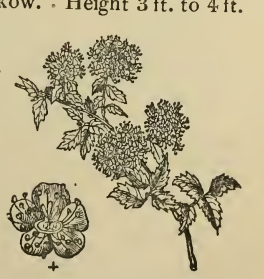
*Identification.* Besser Enum. Pl. Pod., p. 46. No. 1428.; Dec. Prod., 2. p. 543.; Don's Mill., 2. p. 519.
*Engraving.* Our *fig.* 000. in p. 000.

*Spec. Char., &c.* Leaves with three primary veins, and serrate at the tip, cuneate-lanceolate, obtuse, rarely pointed. Flowers in peduncled corymbs. (*Dec. Prod.*) A deciduous shrub. Podolia at Pikow. Height 3 ft. to 4 ft. Introd. in 1807. Flowers white; June and July.

15. *S.* CEANOTHIFO'LIA *Horn.* The Ceanothus-leaved Spiræa.

*Identification.* Horn. Hort. Hafn., p. 2. 466.; Dec. Prod., 2. p. 544.
*Engraving.* Our *fig.* 511.

*Spec. Char., &c.* Leaves ovate, rounded at the base, serrated from the middle to the tip with sharp unequal teeth. Flowers in indistinctly peduncled terminal corymbs. (*Dec. Prod.*) An erect shrub. Native country unknown. Height 3 ft. to 4 ft. Introduced in 1823. Flowers white; June and July. Capsule reddish; ripe in September.


511. *S.* ceanothifōlia.

16. *S.* CORYMBO'SA *Raf.* The corymbose-*flowering* Spiræa.

*Identification.* Rafin. Précis des Découvertes Somiologiques, ou Zoologiques et Botaniques (Palerme, 1814), p. 36.; and in Desv. Journ. Bot., 1814, p.168.; Dec. Prod. 2. p. 544.
*Engravings.* Lod. Bot. Cab., t. 671.; and our *fig.* 512.

512. *S.* corymbosa.

*Spec. Char., &c.* Leaves oval-oblong, unequally serrated, glabrous, green above, hoary below. Flowers trigynous, disposed in terminal corymbs. (*Dec. Prod.*) A handsome shrub. Virginia. Height 4 ft. to 5 ft. Introd. in 1819. Flowers white, produced in great abundance; June and July. Capsule reddish; ripe in Sept.

*Variety.*

S. *c.* 2 *sorória*, *S.* sorória *Penny* in *Hort. Brit.*, is a smaller plant, seldom growing higher than 2 ft., and flowers rather later than the species.

A very desirable species, on account of its large corymbs of white flowers, and its distinctness in external character.

17. *S.* VACCINIIFO'LIA *D. Don.* The Vaccinium-leaved Spiræa.

*Identification.* Don Prod. Fl. Nep., 1. p. 227.; Dec. Prod., 2. p. 546.; Don's Mill., 2. p. 518.
*Synonyme.* *S.* adiantifólia *Hort.*
*Engravings.* Bot. Cab., t. 1430.; and our *fig.* 513.

513. *S.* vacciniifólia.

*Spec. Char., &c.* Upright. Branchlets hairy. Leaves elliptical, acute, serrated at the tip, glabrous, glaucous on the under surface. Flowers disposed in terminal tomentose cymes, a few in a cyme. (*Dec. Prod.*) An upright shrub. Nepal. Height 2 ft. to 3 ft. Introduced in 1820. Flowers white; July and August. Capsule reddish; ripe in October.

18. *S.* LAXIFLO'RA *Lindl.* The loose-flowered Spiræa.

*Identification.* Lindl. Bot. Reg. M. Chron. 1830, No. 89.
*Engraving.* Our *fig.* 000. in p. 000.

*Spec. Char., &c.* Branches weak, round, downy. Leaves smooth, ovate-crenate, long-stalked, glaucous beneath. Panicles loose, villose. Petals reflexed. (*Lindl.*) A shrub resembling *S.* vacciniifólia in the form of the leaves, and the colour of their under surface. Nepal. Height 1 ft. to 2 ft. Introduced in 1838. Flowers white, in large, loose, shaggy panicles; July and August.

19. *S.* BE'LLA *Sims.* The beautiful Spiræa.

*Identification.* Sims; Dec. Prod., 2. p. 542.; Don's Mill., 2. p. 518.
*Engravings.* Bot. Mag., t. 2426.; and our *fig.* 514.

514. *S.* bélla.

*Spec. Char., &c.* Stems erect, branched, glabrous, and reddish. Leaves ovate, acute, sharply serrated, whitishly tomentose on the under surface. Flowers pretty, rose-coloured, in corymbs laxly disposed. Lobes of the calyx deflexed. (*Dec. Prod.*) An erect, loose-growing shrub. Nepal. Height 3 ft. to 4 ft. Introd. 1820. Flowers beautiful rose-coloured; May and June. Capsule reddish; ripe in September.

This species is as hardy, and as easily propagated, as that very common shrub, *S.* salicifólia, from which species it differs in its loose branchy manner of growth, and in the flowers being in corymbs. One of the most beautiful species of the genus.

## § iii. *Spirària* Ser.

*Sect. Char.* Ovaries distinct. Torus with its base connate with the tube of the calyx; its tip separate. Carpels not inflated. Inflorescence a panicle. Leaves serrate, without stipules. (*Dec. Prod.*, ii. p. 544.)

### 20. *S.* SALICIFO`LIA *L.* The Willow-leaved Spiræa.

*Identification.* Lin. Sp., 700.; Camb. Monog.; Dec. Prod., 2. p. 544.
*Synonymes.* Spiræ'a frùtex *Hort.*; Bridewort, Queen's Needlework.
*Engraving.* Gmel. Fl. Sibir., 3. t. 49.

*Spec. Char., &c.* Stem and peduncles glabrous. Leaves lanceolate, serrated, and, more or less, doubly so; glabrous. Lobes of the calyx triangular, spreading. Carpels glabrous. (*Dec. Prod.*) An erect shrub. Siberia, Tartary, and Bohemia; also of Canada, and, perhaps, of Britain. Height 4 ft. to 6 ft. Cultivated in 1665. Flowers red; July and August. Capsule red; ripe in September.

*Varieties.* Seringe has characterised four forms of this species as follows: —

515. *S.* salicifòlia cárnea.

S. s. 1 *cárnea* Ait. Hort. Kew. ed. iii. p. 254., Camb. Mon. (Eng. Bot., t. 1468.; and our *fig.* 515.) — Leaves lanceolate. Panicles consisting of racemes more or less spicated. Petals of a flesh colour. Bark of the branches yellowish. This is the form found wild in Britain: whether it be indigenous or not, botanists are not agreed. Professor Henslow considers it "possibly introduced by the agency of man."

516. *S. s.* alpéstris.

S. s. 2 *alpéstris* Pall. Fl. Ross. i. p. 36. t. 22., Camb. Monog. *S.* alpéstris *Don's Mill.* ii. p. 519. (Our *fig.* 516.)—A small shrub. Leaves shorter than those of *S. s.* cárnea. Branches very short.

S. s. 3 *paniculàta* Willd. Sp. ii. p. 1055., Ait. Hort. Kew. ed. 2. iii. p. 254. *S.* álba *Ehrh. Beitr.* vii. p. 137. (Our *fig.* 517.) — Leaves ovate-oblong. Petals white. Bark of the branches red. It is likely that this is also the *S.* álba of *Miller*, of *Wats. Dend. Brit.* t. 133., and of *Muhlenberg's Catalogue of North-American Plants.*

517. *S. s.* paniculàta.

518. *S. s.* latifòlia.

519. *S. s.* grandiflòra.

S. s. 4 *latifòlia* Willd. Sp. ii. p. 1055. *S.* obovàta *Raf.* in Litt., not of Waldst. et Kit., according to Willd. Enum. 541.; *S.* carpinifòlia

*Willd. Enum.* p. 540., *Don's Mill.* ii. p. 520. (Wats. Dend. Brit., t. 66.; and our *fig.* 518.)—Leaves ovate-oblong. Petals white. Bark of branches rather reddish.

S. s. 5 *grandiflòra* ; *S.* grandiflòra *Lodd. Bot. Cab.* t. 1988., and our *fig.* 519. ; has its pink flowers nearly twice as large as those of the species ; and is a very ornamental free-growing shrub. Raised from seeds sent from Kamtschatka, in 1826.

S. s 6 *taúrica.* *S.* taúrica *Hort.*—An upright shrub, 8 ft. to 10 ft. high, tolerably distinct, and coming into flower before any other variety. Hort. Soc. Garden.

*Other Varieties or Synonymes.* The following kinds, in Messrs. Loddiges's collection and in that of the Hort. Soc., are either varieties of, or identical with, *S. salicifòlia* : — *S.* canadénsis, *S. urticæfòlia*, *S.* laciniàta, *S. chamædrifòlia*, *S.* lanceolàta, *S. carpinifòlia*, *S.* refléxa, *S.* incarnàta.

This species sends up numerous straight rod-like stems, and these and the lateral branches terminate in large, conical, spiked panicles, of pale red, or flesh-coloured, flowers. In deep moist soils, a sucker will attain the height of 4 ft. in one season, and flower. These suckers are produced in such abundance, that, in order to keep the shrub in a vigorous state, they ought to be cut down when they have flowered two years, in the same manner as is practised with raspberries; and the entire plant ought also to be taken up every three or four years, and separated; otherwise the old shoots are apt to die, and render the bush unsightly. It is one of the hardiest of garden shrubs, and is, also, very beautiful, from its long spicate panicles full of light feathery-looking flowers.

### 21. *S.* Menzie'sii Hook. Menzies's Spiræa.

*Identification.* Hook. Fl. Bor. Amer., p. 173.; Don's Mill., 2. p. 520.
*Engraving.* Our *fig.* 520. from a specimen in Dr. Hooker's herbarium.

*Spec. Char., &c.* Branches pubescent at the apex, as well as the peduncles and calyces. Sepals reflexed. Leaves elliptic, coarsely and unequally serrated towards the apex, glabrous, the same colour on both surfaces; panicle crowded with flowers, oblong, obtuse. Flowers small. Stamens twice the length of the corolla; ovaries 5, glabrous. (*Don's Mill.*) An erect shrub. North America, on the west coast. Height 2 ft. to 3 ft. Introduced in 1838. Flowers rose-coloured; June and July.

520. *S.* Menziesii.

### 22. *S.* tomento'sa *L.* The downy Spiræa.

*Identification.* Lin. Sp., 701. ; Camb. Monog. ; Dec. Prod., 2. p. 544. ; Don's Mill., 2. p. 250.
*Synonyme.* *S.* Douglàsii Hook. Fl. Bor. Amer. p. 172.
*Engravings* Pluk. Phyt., t. 321. f. 5. ; Schmidt Arb., 1. t. 51. ; and our *fig.* 521.

*Spec. Char., &c.* Nearly all the parts of this plant are more or less clothed with tomentum, the under surface of the leaves most so. The tomentum upon the stem and peduncles, and perhaps elsewhere, is of a reddish colour. The leaves are ovate and serrated, the latter partly doubly so. Lobes of the calyx triangular and deflexed. Carpels divaricate. (*Dec. Prod.*) An erect shrub. Canada, on mountains. Height 2 ft. to 3 ft. Introduced in 1814. Flowers white; June and July. Capsule reddish ; ripe in September.

This species, or subspecies, in its mode of growth, resembles *S. salicifòlia* ; but differs from it in having rather smaller and more deeply serrated leaves, which are very tomentose beneath. The flowers are much smaller, and of a deeper red.

521. *S.* tomentòsa.

### 23. *S.* LÆVIGA'TA *L.* The smooth-*leaved* Spiræa.

*Identification.* Lin. Mant., 244.; Camb. Monog.; Dec. Prod., 2. p. 544.; Don's Mill., 2. p. 519.
*Synonymes.* *S.* altaicénsis *Laxm. Nov. Act. Petrop.* 15. p. 555. t. 29. f. 2.; *S.* altàica *Pall. Fl. Ross.* 1. p. 272.
*Engravings.* Nov. Act. Petrop., t. 29. f. 2.; Pall. Fl. Ross., 1. t. 23.; and our *fig.* 522.

*Spec. Char., &c.* Leaves obovate-oblong, perfectly smooth, entire, sessile, tipped with a small mucro. Branchlets of the panicle cylindrical. Bracteas linear, rather shorter than the calyx. Lobes of the calyx triangular, ascending. (*Dec. Prod.*) A spreading shrub. Siberia, in valleys at the foot of the more lofty of the Altaian Mountains. Height 2 ft. to 4 ft. Introd. in 1774. Flowers white; May and June. Capsule reddish; ripe in September.

522. *S.* lævigàta.

A very interesting and handsome species, with a habit exceedingly dissimilar to that of spiræas in general.

### 24. *S.* ARIÆFO'LIA *Smith.* The White-Beam-tree-leaved Spiræa.

*Identification.* Smith, in Rees's Cyclop., vol. 33.; Bot. Reg., t. 1365.; Dec. Prod., 2. p. 544.; Don's Mill., 2. p. 520.
*Engravings.* Bot. Reg., t. 1365.; and our *figs.* 523, 524.

523. *S.* ariæfòlia.

*Spec. Char., &c.* Leaves elliptical, oblong, more or less lobed, toothed, pale, villose beneath. Panicle villose. (*Dec. Prod.*) An erect bushy shrub. North America, principally on the north-west coast. Height 6 ft. to 8 ft. Introduced in 1827. Flowers white; June and July. Capsule reddish; ripe in September.

524. *S.* ariæfòlia.

A free-growing dense bush, prolific both in leaves and flowers; and, as the latter appear at a season when the flowering of shrubs is comparatively rare, it is justly considered as a most valuable addition to British gardens. It is perfectly hardy, will grow in any free soil, and is easily propagated either by division or by seeds, which it ripens in abundance.

## § iv. *Sorbària* Ser.

*Sect. Char.* Leaves pinnate, resembling, as the name implies, those of the mountain ash, or other species of *Pỳrus* belonging to the section *Sórbus*.

### 25. *S.* SORBIFO'LIA *L.* The Sorbus-leaved Spiræa.

*Identification.* Lin. Sp., 702.; Camb. Monog.; Dec. Prod., 2. p. 545.
*Synonyme.* *S.* pinnàta *Mœnch Meth.* 633.
*Engravings.* Gmel. Fl. Sib., 3. p. 190. t. 40.; Schmidt Baum., 1. t. 58.; and our *fig.* 525.

*Spec. Char., &c.* Leaves stipuled, pinnate; the leaflets sessile, opposite, lanceolate, doubly and sharply serrated. Inflorescence a thyrse-like panicle. Torus wholly connate with the tube of the calyx. Ovaries connate, 5. (*Dec. Prod.*) A thick stiff-branched shrub. Siberia, in moist places. Height 3 ft. to 6 ft. Introd. in 1759. Flowers white; July and August. Capsule reddish; ripe in September.

*Variety.*

S. s. 2 *alpìna* Pall. Fl. Ross. i. p. 34. and 89. t. 25. *S.* grandiflòra *Sweet's Hort. Brit.* p. 194.; *S.* Pallàsii Don's Mill. ii. p. 520.—Suffruticose. Flowers twice the size of those of the species, and disposed in corymbs. Leaves smaller, and serrately incised. A native of Eastern Siberia and of Kamtschatka. (*Dec. Prod.*) This is

very different from *S. s.* grandiflòra, the *S.* grandiflòra of *Lodd.*, described above, among the varieties of *S. s*alicifòlia.

525. *S. s*orbifòlia.

*S. s*orbifòlia is a branchy shrub, growing to the height of 6 or 8 feet, with a round, brown-coloured, warty stem; the wood of which is brittle, and hollow within, with a soft ferruginous pith. The leaves are thin in texture, and bright green on both sides. The flowers are in terminating panicles and small: they are odorous, but not agreeably so. In dry rocky situations, it does not rise above 1 ft. in height, and is subherbaceous. It deserves a place in every collection, from its marked character, and from the beauty both of its foliage and its flowers. It throws up abundance of suckers, by which it is easily propagated.

### ♠ 26. *S.* Lindleya'na *Wall.* Lindley's Spiræa.

*Identification.* Wall. Cat., and Gard. Mag. 1840, p. 3.
*Engraving* Our *fig.* 526. from the Linnean herbarium

*Spec. Char., &c.* Leaflets ovate lanceolate, acuminate, finely and sharply serrated. A large shrub. Nepal. Height 6 ft. to 8 ft. Flowers white; July and August.

526. *S.* Lindleyàna.

The leaves are larger than those of any other species of the genus; and, altogether, it forms a remarkably handsome plant, well deserving a place in collections.

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*A Selection of Species.*—The following kinds, in the London gardens, appear distinct:—

1. S. *tomentòsa*, comprehending *S.* Tohólski.

2. S. *chamædrifòlia*, comprehending *S. b*etulæfòlia, *S.* dàùrica, *S.* sibírica, *S.* laciniàta.

3. S. *salicifòlia*, comprehending *S.* canadénsis, *S.* grandiflòra, *S.* paniculàta, *S. u*rticæfòlia, *S.* lanceolàta, *S. c*arpinifòlia, *S.* refléxa, *S.* incarnàta, *S.* taúrica.

4. S. *flexuòsa*, comprehending *S. u*lmifòlia, *S.* carpinifòlia, *S. b*etulifòlia, and, perhaps, some others.

5. S. *béllа*. 6. S. *corymbòsa*. 7. S. *cuneifòlia*.

8. S. *vacciniifòlia*. 9. S. *laxiflòra*.

10. S. *hypericifòlia*, comprehending *S.* crenàta, *S.* infléxa *Wendland* (H. S. Gard.), *S.* obovàta *Wendland* (H. S. Gard.), *S.* argéntea, *S.* cuneàta, *S.* nàna, *S.* alpìna, *S.* acutifòlia, *S.* decúmbens.

11. S. *oblongifolia* Wendland, apparently an upright fastigiate variety of *S. h*ypericifòlia.

12. S. *càna*. 13. S. *trilobàta*.

14. S. *sorbifòlia*, comprehending *S.* picowiénsis of Loddiges, which is a totally different plant from the *S.* pikowiénsis of Besser, our No. 14. in p. 305.

15. S. *Lindleyàna*.

## Sect. III. Potenti'lleæ.

### Genus IX.

**RU'BUS** *L.* The Bramble. *Lin. Syst.* Icosándria Polygýnia.

*Identification.* Lin. Gen , No. 364. ; Dec. Prod., 2. p. 556. ; Don's Mill., 2. p. 59 .
*Synonymes.* Ronce, Framboisier, *Fr* ; Himbeere, Brombeerstrauch, *Ger.*
*Derivation.* From *rub*, red in Celtic ; in reference to the colour of the fruit in some of the species.

*Gen. Char. Calyx* flattish at the bottom, 5-cleft. *Petals* 5. *Stamens* numerous, inserted in the calyx along with the petals. *Carpels* or *Achenia* numerous, fleshy, disposed in a head upon an elevated torus. *Styles* lateral, near the apex of the carpel. (*Don's Mill.*)

*Leaves* compound, digitate, pinnate or lobed, stipulate, deciduous or sub-evergreen ; with the leaflets usually stalked. *Flowers* white or pink, in terminal racemes. *Fruit* edible.

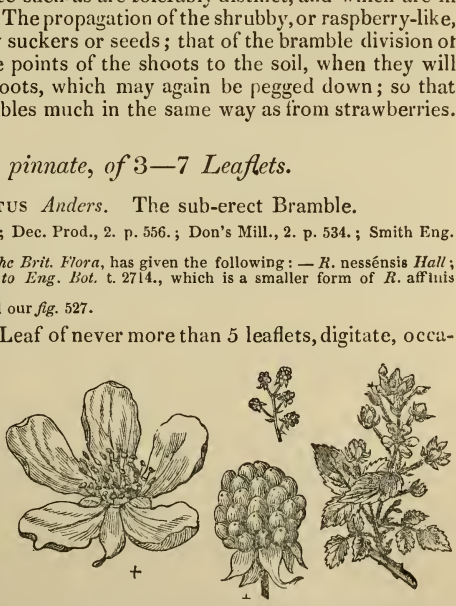
Shrubs, deciduous, subligneous, with prickly stems ; for the most part prostrate, but a few of them growing upright. Some of them, such as *R.* fruticòsus, may be considered as sub-evergeen, as they retain the greater part of their leaves in a green state through the winter. All the kinds popularly called brambles may be considered as gigantic strawberry plants ; and all their shoots are used by thatchers, and makers of beehives, straw mats, &c. No less than 48 supposed species of the genus are described and figured in the *Rubi Germanici* of Weihe and Nees von Esenbeck. The number of species in *English Botany* is, in Dr. Lindley's *Synopsis of the British Flora*, 21 ; which, he says, may be reduced to 5, or possibly to 2, exclusive of the herbaceous species. In *Don's Miller*, 147 are given as the total number described by botanists. We shall only notice such as are tolerably distinct, and which are in cultivation in British gardens. The propagation of the shrubby, or raspberry-like, species of *R*ùbus is effected by suckers or seeds ; that of the bramble division of the genus by pegging down the points of the shoots to the soil, when they will root, and throw out other shoots, which may again be pegged down ; so that plants are procured from brambles much in the same way as from strawberries.

### § i. *Leaves pinnate, of* 3—7 *Leaflets.*

#### 1. *R.* subere'ctus *Anders.* The sub-erect Bramble.

*Identification.* Anders. in Linn. Soc. ; Dec. Prod., 2. p. 556. ; Don's Mill., 2. p. 534. ; Smith Eng. Flora, 2. p. 406.
*Synonymes.* Lindley, in his *Syn. of the Brit. Flora*, has given the following : — *R.* nessénsis *Hall* ; *R.* plicàtus *W. & N.*, not of *Suppl. to Eng. Bot.* t. 2714., which is a smaller form of *R.* affinis *W. & N.* ; *R.* corylifòlius *Wahlenb.*
*Engravings.* Eng. Bot., t. 2572. ; and our *fig.* 527.

*Spec. Char., &c.* Stem erect. Leaf of never more than 5 leaflets, digitate, occasionally pinnate, thin, shining, and plaited. Flowers in simple corymbose racemes. Prickles weak. (*Lindl.*) A sub-erect shrub. Britain, in moist woods and by the sides of rivulets, chiefly in the northern counties. Stems 3 ft. to 4 ft. Flowers white ; June to September. Fruit pale purple ; ripe in August.



527. Rùbus suberéctus.

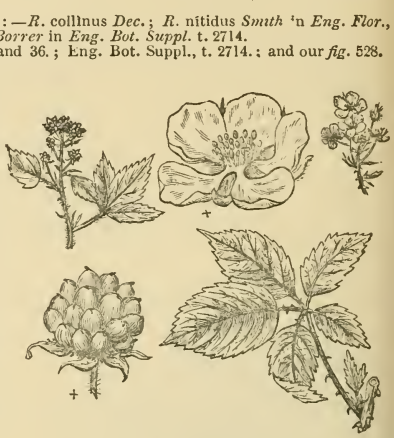
x 4

The stems are biennial, and flower the second year, like those of the common raspberry, afterwards dying off. The fruit consists of a small number of dark red, or blood-coloured, aggregate grains, agreeably acid, with some flavour of the raspberry; whence it has been recommended by some as perhaps not unworthy of cultivation.

### 2. *R.* AFFI'NIS *Weihe & Nees.* The related Bramble.

*Identification.* Weihe and Nees's Rubi Germanici, p. 22. t. 3. and 36.; Dec. Prod., 2. p. 560.; Lindl. Synops. Br. Fl., 2d ed. p. 92, 93.
*Synonymes.* Lindley mentions the following:—*R.* collinus *Dec.*; *R.* nitidus *Smith* in *Eng. Flor.*, *Lindley* in *Syn. Br. Fl.* ed. 1.; *R.* plicatus *Borrer* in *Eng. Bot. Suppl.* t. 2714.
*Engravings.* Weihe and Nees's R. G., t. 3. and 36.; Eng. Bot. Suppl., t. 2714.; and our *fig.* 528.

*Spec. Char., &c.* Stem arched, angled, prickly with strong recurved prickles, glabrous. Leaflets 3—5 in a leaf, ovate with a heart-shaped base, cuspidate, sharply serrated, flat at the base, a little waved towards the tip, having downy tomentum beneath. Flowers in a compound panicle, the component ones cymose. Sepals ovate-acuminate, externally naked, reflexed. Carpels large, blue-black. (*Dec. Prod.*) A low bramble. Germany, also of barren hills of Montpelier, and of Britain, in boggy places. Flowers white; July and August.


528. *Rubus affinis.*

*Variety.*

✱ R. *a.* 2 *bracteosus* Ser. *R. a.* γ and δ, *Weihe and Nees's Rubi Germ.* t. 3. b. — Bracteas very broad, undivided.

### 3. *R.* MICRA'NTHUS *D. Don.* The small-flowered Bramble.

*Identification.* Don Prod. Fl. Nepal., p. 235.; Dec. Prod., 2. p. 557.; Don's Mill., 2. p. 530.
*Synonyme.* *R.* pauciflorus *Lindley* in *Bot. Reg.*, *Hort. Brit.* n. 13500.
*Engravings.* Bot. Reg., t. 854., as *R.* pauciflorus *Lindl.*; and our *fig.* 529. representing a sprig to the usual scale, and *figs.* 530. and 531. representing the flowers and fruit of the natural size.

*Spec. Char., &c.* Upright. Stem round, branched, and bearing awl-shaped inflexed prickles, or straight prickles, and the branches recurved ones. Young branchlets rather glaucous at the extremity. Leaf pinnate, of 5—7 leaflets, that are ovate or oblong, mucronate, doubly serrated, plaited; green and glossy above; whitishly tomentose, or else glaucous, beneath. Petiole and rachis bearing prickles here and there. Petiole pilose. Stipules lanceolate, acuminate, membranaceous. Flowers small, reddish purple, disposed in a corymbose panicle. Petals clawed, shorter than the sepals. (*Dec. Prod.*) A gigantic bramble. Nepal. Stems 8 ft. to 20 ft. Introd. 1822. Flowers bright reddish purple; May to August. Fruit black; ripe in August. Naked young wood of a dark mahogany colour.

529. *Rubus micranthus.*

530. *Rubus micranthus.*

531. *R. mic.*

It is easily distinguished from all the other brambles in British gardens, by its nearly erect, strong, smooth, dark mahogany-coloured shoots, and by its very long pinnate leaves. The flowers are small, and the petals are of a bright reddish purple, and shorter than the sepals. The fruit is of a blackish purple, of the middle size; depressedly spherical, and covered with a fine bloom. The grains are fleshy, with a sweet subacid taste. This species throws up suckers sparingly; but its magnificent shoots arch over after they get to 6 or 8 feet in height, and grow branching and flowering on every side, till they reach the ground, when their extreme points strike root, and form new plants. Horticultural Society's Garden.

### ♣ 4. *R.* OCCIDENTA'LIS *L.* The Western, *or American*, Bramble.

*Identification.* Lin. Sp., 706.; Dec. Prod., 2. p. 558.; Don's Mill., 2. p. 531.
*Synonymes.* *R.* virginiànus *Hort.*; *R.* idæ'us frúctu nigro *Dill.*
*Engravings.* Sloane Jam., t. 213. f. 1.; Dill. Hort. Elt., t. 247. f. 319.; and our *fig.* 532.

*Spec. Char., &c.* The whole plant is pretty glabrous. Stems round and whitish. Prickles recurved. Leaves of the barren branches pinnate; of the fertile branches trifoliolate. Leaflets ovate, incisely serrated, whitely tomentose beneath. Stipules very narrow, and bristle-like. Flowers in umbels. Peduncle prickled. Sepals lanceolate-linear, tomentose, longer than the petals, which are obovately wedge-shaped, two-lobed, and spreading. Fruit black, acid, of the form of that of *R.* idæ'us. Carpels numerous, rather glabrous; becoming, by drying, rugged with little hollows. (*Dec. Prod.*) A sub-erect shrub. Canada and the West Indies. Height 4 ft. to 6 ft. Introduced in 1696. Flowers white; May and June. Fruit black; ripe in August. Horticultural Society's Garden.

532. *R.* occidentàlis.

### ♣ 5. *R.* IDÆ'US *L.* The Mount Ida Bramble, *or common Raspberry.*

*Identification.* Lin. Sp., 706.; Dec. Prod., 2. p. 558.
*Synonymes.* *R. frambœsiànus* Lam. Fl. Fr., 3. p. 135.; Framboisier, *Fr.*; gemeine Brombeere, *Ger.* "The Raspis is called in Greeke BATOS IDAIA; in Latin, *Rubus Idæa*, of the mountaine Ida, on which it groweth; in English, Raspis, Framboise, and Hinde-berry." (*Johns. Ger.*, p. 1274.)
*Engravings.* Eng. Bot., t. 2442.; and our *fig.* 533.

*Spec. Char., &c.* Villose. Stem round, bearing slender recurved prickles. Leaves pinnate; those of the fertile stems of 3 leaflets, those of the sterile stems of 5, rather palmately disposed. Leaflets ovate, incisely serrated, whitely tomentose beneath. Stipules very narrow and bristle-like. Flowers in a corymbose panicle. Sepals ovate-lanceolate, whitely tomentose, ending in a point. Petals obovate-wedge-shaped, entire, conniving, shorter than the calyx. Carpels numerous, tomentose. (*Dec. Prod.*) An upright shrub, with a creeping root and biennial stems. Europe, and, probably, Asia, Africa, and America. Found in every part of Great Britain, and in Ireland, in the agricultural and subalpine regions, in woods, and in moist wastes. Height 4 ft. to 8 ft. Flowers white; May, June, and July. Fruit red; ripe in July, August, and September.

*Varieties.*

♣ R. *i.* 2 *microphýllus* Wallr. Sched. p. 256. — Leaves all of 3 leaflets. Stem suffruticose; dwarfer and more bushy than the species. (*Dec. Prod.*)

*Garden Varieties.* There are varieties with red fruit, yellow fruit, and white fruit; and one which bears twice in the year.

The fruit of the species, in a wild state, is crimson, amd consists of numerous juicy grains, beset with the permanent styles, and highly fragrant; with a very deliciously sweet, and yet slightly acid flavour, when eaten. Improved varieties of it have long been in cultivation in gardens, for the fruit, which is delightfully fragrant, and grateful to the palate in itself, and is used in nu-

merous culinary and confectionery articles, as well as in liqueurs. The raspberry requires a vegetable soil, rather moist, soft, and not very deep; because most of the roots, like those of all other plants that throw up numerous suckers, keep near the surface; and the situation should be shaded, rather than fully exposed to the meridian sun. In a wild state, it is almost always found more or less shaded by trees, but not under their drip; and in woods, the situation of which is rather low and moist, than hilly and rocky or dry. The root belongs to that description which is called travelling; that is, the suckers extend themselves all round the central plant, so as every year to come up in fresh soil. Hence, as Miller observes, a raspberry plantation requires to be renewed every five or six years.

533. *R.* idæ'us.

## § ii. *Leaves digitate, of* 3—5 *Leaflets.*

### ✱ 6. *R.* LACINIA'TUS *W.* The cut-*leaved* Bramble.

*Identification.* Willd. Hort. Berol., p. 82. and t. 82.; Dec. Prod., 2 p. 558.; Don's Mill., 2. p. 532.
*Engravings.* Willd. Hort. Berol., t. 82.; Wats. Dend. Brit., t. 69.; and our *fig.* 534.

*Spec. Char., &c.* Stem rather round, bearing stout recurved prickles, compressed at the base. Leaflets 3—5, pinnately cut, sharply serrate, a little downy beneath. Flowers in loose panicles, white or rose-coloured. Sepals lanceolate, leafy at the tip, tomentose, prickled, reflexed. Petals wedge-shaped, 3-lobed at the tip. Carpels roundish, dark-coloured. (*Dec. Prod.*) A large and handsome bramble. Stems 4 ft. to 10 ft. Flowers white, or rose-coloured; June to September. Fruit black; ripe in August. Naked young wood of a fine purple colour.

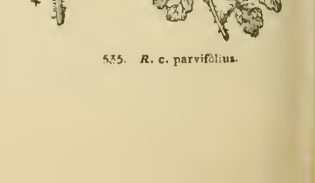
534. *R.* laciniàtus

The appearance of this plant is that of the common bramble, except in the leaflets, which, from their being deeply cut, are strikingly different. Where it was first found is unknown; but it is, in all probability, only a variety of the common bramble, analogous to the cut-leaved variety of the elder (*Sambùcus nìgra laciniàta.*) H. S.

### ✱ 7. *R.* CÆ'SIUS *L.* The grey Bramble, *or Dewberry.*

*Identification.* Lin. Sp., 706.; Dec. Prod., 2. p. 558.; Don's Mill., 2. p. 533.
*Engravings.* N. Du Ham., 5. t. 22.; Hayne Abbild., t. 100.; Eng. Bot., t. 826.; and our *fig.* 536.

*Spec. Char., &c.* Stem trailing, round, in many instances suffused with a grey bloom, bearing slender and a little recurved prickles. Leaflets 3 in a leaf, ovate, doubly serrated or crenated, glabrous, or obscurely ciliated. Panicle almost simple. Sepals ovate-acuminate. Petals white. Fruit sweet. Carpels large, few, greyish. (*Dec. Prod.*) A low straggling bramble. Europe and the North-East of Asia, in



535. *R.* c. parvifòlius.

woods and hedges. Stem 4 ft. to 8 ft. Flowers white; June and July. Fruit black; ripe in August.

*Varieties.*

- ✱ R. *c.* 2 *arvénsis* Wallr. Sched. p. 288. *R.* pseùdo-cæ'sius *Weihe*, according to Ern. Meyer in Litt. — Leaflets tomentose beneath. Branches puberulous.
- ✱ R. *c.* 3 *grandiflòrus* Ser. — Pubescent. Petals and sepals long.
- ✱ R. *c.* 4 *parvifòlius* Wallr. Sched., p. 228. (Our *fig.* 535.) — Stem ascending, purplish, ultimately naked. Leaves small, incisely lobed. Peduncle 1—3-flowered. A native of herbage-covered hills.
- ✱ R. *c.* 5 *fòliis variegàtis* Hort. has variegated leaves.

536. *R.* cæ'sius.

A low, weakly, straggling, prostrate plant, having the flowers with blush-coloured petals, and the fruit small, with few grains; but these large, juicy, black, with a fine glaucous bloom, and very agreeably acid. This species varies exceedingly in the size of its flowers and leaves in different situations, whence have arisen many varieties.

### ✱ 8. *R.* CORYLIFO'LIUS *Smith.* The Hazel-leaved Bramble.

*Identification.* Smith Fl. Brit., p. 542.; Smith in Eng. Bot., t. 827.; Don's Mill., 2. p. 533.
*Synonymes.* *R.* vulgàris *Weihe & Nees*, according to Lindley, *Synopsis of Brit. Flora*, ed. 2. p. 94., *R.* nemoròsus *Heyne*, according to Sprengel and Goldbach.
*Engravings.* Eng. Bot., t. 827.; and our *fig.* 538.

*Spec. Char., &c.* Stem angled, bearing straightish prickles. Leaflets 3—5, cordate-ovate, firm, doubly serrated, pilose beneath. Panicle nearly simple. Flowers white. Sepals ovate-acuminate, ultimately reflexed. Carpels purplish-blue, and large. (*Dec. Prod.*) A large bramble. Native of Europe, especially in the southern part; and frequent in Britain, in hedges and thickets. Stems 6 ft. to 12 ft. Flowers white; June and July. Fruit purplish blue or black, large; ripe in August.

*Varieties.*

- ✱ R. c. 2 *cànus* Wallr. Sched. p. 231. — Leaflets all similar in form, roundish heart-shaped, whitishly tomentose upon both surfaces.

537. *R. c.* glandulòsus.

- ✱ R. c. 3 *glandulòsus* Wallr. Sched. p. 231. *R.* glandulòsus *Spreng.*, according to Wallr. (Our *fig.* 537.) — Stems, petioles, and peduncles glandulous.

538 *R.* corylifolius.

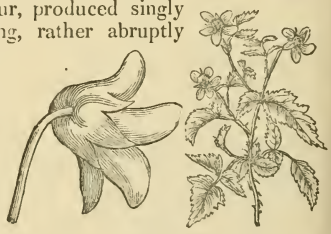
The stems are long and trailing, sometimes arching, glaucous and purplish in the sun, and green in the shade: they are brittle and full of pith. The flowers are large, and appear earlier than those of most o fthe British species. The berry is large, agreeably acid, of larger and fewer grains than in *R.* fruticòsus, and of a browner black: they are ripened before those of *R.* fruticòsus and its allies.

According to Dr. Lindley, the following British kinds of *R*ùbus may be associated with *R.* corylifòlius *Smith*, either as related species, or as varieties: —R. *macrophýllus* Weihe & Nees (Eng. Bot. Suppl., t. 2625.); R. *carpinifòlius* Weihe & Nees; R. *fúsco-àter* Weihe & Nees; R. *Kö'hleri Weihe & Nees* (Eng. Bot. Suppl., t. 2605.), *R.* pállidus *Weihe & Nees*; R. *glandulòsus* Smith; R. *rùdis* Weihe & Nees, *R.* echinàtus of ed. 1. of *Lindl. Synops.*, and our *H. B.* No. 28335.; R. *diversifòlius* Lindl. Synops. ed. 1., *R.* diversifòlius *Weihe, Hort. Brit.* No. 28330.

9. *R.* SPECTA'BILIS *Ph.* The showy-*flowered* Bramble.

*Identification.* Ph. Fl. Amer. Sept., 1. p. 348. t. 16.; Dec. Prod., 2. p. 559.; Don's Mill., 2. p. 533.
*Synonyme.* *R. ribifòlius Willd. Herb.*, according to Steven.
*Engravings.* Ph. Fl. Amer. Sept., t. 16.; Bot. Reg., 1424.; Bot. Cab., t. 1602.; and our *fig.* 539.

*Spec. Char., &c.* Stem not bearing prickles, glabrous. Leaf of three leaflets, that are ovate, acute, doubly and unequally serrated, downy beneath. Flowers of an agreeable purplish colour, produced singly on terminal peduncles. Sepals oblong, rather abruptly acuminate, shorter than the petals. (*Dec. Prod.*) An elegant shrubby bramble. Native of North America, on the banks of the Columbia River, and the north-west coast. Height 4 ft. to 5 ft. Introduced in 1827. Flowers rosy purple, odoriferous; April and May. Fruit large, dark yellow; ripe in July.



539. *R.* spectábilis.

Branches subflexuose, round, smooth; with large odoriferous flowers, succeeded by large dark-yellow fruit, of an acid and somewhat astringent taste, which make excellent tarts. It merits a place in every collection, both as a flowering shrub, and for its fruit.

10. *R.* FRUTICO'SUS *L.* The shrubby Bramble, *or common Blackberry.*

*Identification.* Lin. Sp., 707.; Weihe and Nees Rubi Germanici, p. 25.; Dec. Prod., 2. p. 561.; Don's Mill., 2. p. 534.
*Synonymes.* *R.* discolor and *R.* abrúptus, in *Lindl. Synops. of Brit. Flora*, ed. 1.
*Engravings.* Eng. Bot., t 715.; and our *fig.* 541.

*Spec. Char., &c.* Stem erect, and afterwards decurved, 5-angled, rather tomentose, bearing recurved prickles. Leaflets 3—5, ovate-oblong, acute, glabrous, beneath greyly tomentose, each on a secondary petiole. Panicle decompound, narrow, straight. Sepals reflexed, almost without prickles. (*Dec. Prod.*) A large bramble. Native of Europe, in hedges, thickets, and woods; in Britain abounding in the agricultural zone, and tolerably frequent in the upland zone; with, according to Mr. Winch, a limit similar to that of *U*'lex europæ'a. Stem 6 ft. to 12 ft. Flowers white, or rose-coloured; June to August. Fruit purplish black; ripe August to September or October.

540. *R.* f. pompònius.

*Varieties.*

R. *f.* 2 pompònius *Ser.* *R.* fruticòsus δ *Weihe & Nees.* (*fig.* 540.) — Flowers

semidouble or double. Leaves pale green; leaflets obovate. Cultivated in gardens. This variety may be considered as highly ornamental, from the large size and numerous petals of its flowers, and from its very vigorous growth. Though it will thrive at the roots of trees, and in places where other ornamental plants will hardly grow, yet it produces most effect when it is trained against a wall.

⁂ R. *f.* 3 *taúricus* Hort. is a vigorous-growing plant, which produces by far the best fruit of any variety of bramble. H. S.

⁂ R. *f.* 4 *flòre ròseo plèno* Baum. Cat.—Flowers double pink. H. S.

⁂ R. *f.* 5 *fòliis variegàtis.*—Leaves variegated, and not liable to the objections made to most variegated plants.

⁂ R. *f.* 6 *leucocárpus* Ser. — Fruit white. (*Dec. Prod.*)

This species is considered as being more common than any of the other brambles, and also as attaining a greater size. It is always found to prosper best on a soil somewhat dry and gravelly; and, accordingly, Switzer, when speaking of choosing a soil and situation for a vineyard, recommends looking out for one where the bramble is abundant and vigorous. The fruits have been eaten by children, in every country where they grow wild, since the time of Pliny. They have also been used, both in France and England, to produce a subacid drink; an inferior description of wine; by fermentation and distillation, a strong spirit; and, boiled with sugar, a very good jam.

541. *R.* fruticòsus.

⁂ 11. *R.* HI'SPIDUS *L.* The hispid-*stemmed* Bramble.

*Identification.* Lin. Sp., 706.; Dec. Prod., 2. p. 564.; Don's Mill., 2. p. 537.
*Synonymes.* *R.* triviàlis *Michx. Fl. Bor. Amer.* p. 296.; *R.* procúmbens *Mühl.*; *R.* flagellàris *Willd.*, according to *Spreng. Syst.* 2. p. 530.
*Engravings.* Hayne Abbild., t. 71.; and our *fig.* 542.

*Spec. Char., &c.* Stem procumbent, round, very hispid, bearing scattered bristles and recurved prickles. Leaflets 3—5, wedge-shaped at the base, unequally toothed, pretty glabrous above. Flowers solitary, upon longish peduncles. Petals obovate. Carpels black. (*Dec. Prod.*) A bramble with procumbent stems. Canada. Stems 6 ft. to 8 ft. Introduced in 1759. Flowers white; August. Fruit black, edible; ripe in September and October.

542. *R.* hispidus.

## § iii. *Leaves lobed, not pinnate or digitate.*

⁂ 12. *R.* ODORA'TUS *L.* The sweet-scented-*leaved* Bramble.

*Identification.* Lin. Sp., 707.; Dec. Prod., 2. p. 566.; Don's Mill., 2. p. 539.
*Synonymes.* *R.* occidentàlis *Hort.*, but not of Lin.; the Virginian Raspberry, the flowering Raspberry.
*Engravings.* Mill. Ic., t. 223.; Bot. Mag., t. 323.; and our *fig.* 543.

*Spec. Char., &c.* Stem upright. Petioles, peduncles, and calyxes bearing glanded hairs. Disks of leaves 5-lobed, unequally toothed. Inflorescence subcorymbose. Flowers large, showy, red. Sepals ovate, longly acuminate, shorter than the petals. Carpels numerous, ovate, velvety. Style funnel-shaped. (*Dec. Prod.*) An upright shrub. North America, in the woods of Canada, and on the Alleghany Mountains. Height 4 ft. to 6 ft. Introduced in 1700. Flowers purplish red; June to Sept. Fruit yellow, rarely seen in England.

543. *R.* odoratus.

The flowers are not succeeded by fruit in this country ; but Pursh informs us that, in a wild state, the fruit is yellow, and of a very fine flavour, and a large size. " Cornutus, who first figured and described this plant, gave it the name of odoràtus, on account of the very grateful fragrance of its foliage." (*Bot. Mag.*, t. 323.)

13. *R.* NUTKA'NUS *Moc.* The Nootka Sound Bramble.

*Identification.* Mocino Pl. Nutk. ; Dec. Prod., 2. p. 566. ; Bot. Reg., t. 1368. ; Don's Mill., 2. p. 540.
*Synonyme.* *R.* odoràtus *Hort.*, but not of Lin.
*Engravings.* Mocino Pl. Nutk. ; Bot. Reg., t. 1368. ; and our *fig.* 544.

544. Rùbus nutkànus.

*Spec. Char., &c.* Stem glutinous. Branches round, glabrous, rufous. Leaves 5-lobed, unequally toothed. Inflorescence subcorymbose. Flowers about 4 in a corymb, white. Sepals ovate, longly acuminate, glabrous, as long as the petals. Allied to *R.* odoràtus, but the peduncle and calyx are glabrous. (*Dec. Prod.*) An upright shrub. North-west coast of North America, from New California to Nootka Sound, and at various places between north latitude 43° and 52°, in mountains and woods. Height 5 ft. to 6 ft. Introduced in 1826. Flowers white; May to October. Fruit yellow or reddish ; ripe in August.

The general aspect and appearance of *R.* odoràtus, except being of a paler green. The flowers are succeeded by large yellow or reddish berries, which are found to make excellent tarts ; and the plant will probably soon be ranked as a fruit shrub. Horticultural Society's Garden.

*Species and Varieties of* Rùbus *best deserving of Cultivation in British Gardens, as ornamental Shrubs.*

A. *Erect Raspberry-like Sorts.*

R. *occidentàlis, the Western,* or black, *Raspberry,* No. 4. ; and fig. 532. in p. 313.
R. *nutkànus, the Nootka Sound Raspberry,* No. 13.; and fig. 544. in p. 318.
R. *odoràtus, the sweet-scented,* or Virginian *Raspberry,* No. 12. ; and fig. 543. in p. 317.
R. *spectàbilis, the showy*-flowered *Raspberry,* No. 9. ; and fig. 539. in p. 316.
R. *idæ'us, the Mount Ida,* or common, *Raspberry,* No. 5.; and fig. 533. in p. 314. — The varieties of this species which are recommended as being most suitable for planting in an arboretum are, the red Antwerp, the white Antwerp, and the smooth cane.

B. *Shrubby Brambles.*

R *suberéctus, the sub-erect Bramble,* No. 1.; and fig. 527. in p. 311.
R. *micrànthus, the small-flowered,* or Nepal, *Bramble,* No. 3.; and figs. 530, 531. in p. 312.
R. *fruticòsus, the shrubby Bramble,* or common Blackberry, No. 10.; and fig. 540. in p. 316.—The varieties recommended are, the double-flowered, the double pink-flowered (if it can be got), the variegated-leaved, and *R.* f. taúricus, on account of its large and excellent fruit.
R. *laciniàtus, the cut*-leaved *Bramble,* No. 6. ; and fig. 534. in p. 314.
R. *corylifòlius, the Hazel-leaved Bramble,* No. 8. ; and fig. 537. in p. 315.

C. *Prostrate Brambles*

R. *cæ'sius, the grey Bramble,* or Dewberry, No. 7. ; and fig. 535. in p. 314.—The variety recommended, in addition to the species, is that with variegated leaves.

*Remark.* The plants in the last two groups are propagated by division of the roots, or by encouraging the points of the shoots to root, like the runners of a strawberry ; and the plants in the first group by division of the root, or by suckers.

*Other Sorts of shrubby Rubuses.*—R. *macropétalus* Doug. MS. in *Hook. Fl. Bor. Amer.* p. 178. t. 59., and our *fig.* 545., is a native of low woods in the valley of the Columbia, with white flowers, and the general habit of *R.* spectábilis.

R. *deliciòsus* Torrey in *Ann. Lyc.* ii. p. 196. is a native of North America, among the Rocky Mountains; with purple flowers, succeeded by a very delicious fruit. It is a shrubby bramble, 5 or 6 feet high.

R. *tiliàceus* Smith in *Rees's Cycl.* vol. xxx. is a native of Upper Nepal, with white flowers, and leaves like those of *Tília álba*. *R.* cordifòlius *D. Don* appears to be the same species, or perhaps a variety. Hort. Soc. in 1834.

545. *R.* macropétalus.

## Genus X.

### POTENTI'LLA *L.* The Potentilla, *or* *Shrubby Cinquefoil.*

*Lin. Syst.* Icosándria Polygýnia.

*Identification.* Lin. Gen., No. 865.; Nestl. Pot. Diss., 4to; Lehm. Pot. Diss., 4to; Dec. Prod., 2. p. 571.; Don's Mill., 2. p. 549.
*Derivation.* From *potens*, powerful; in allusion to the supposed medicinal qualities of some species.

*Gen. Char.* *Calyx* 10-parted, the 5 outer segments accessory. *Petals* 5. *Stamens* numerous. *Carpels* numerous with lateral styles, seated on a dry permanent, elevated receptacle. (*Don's Mill.*)

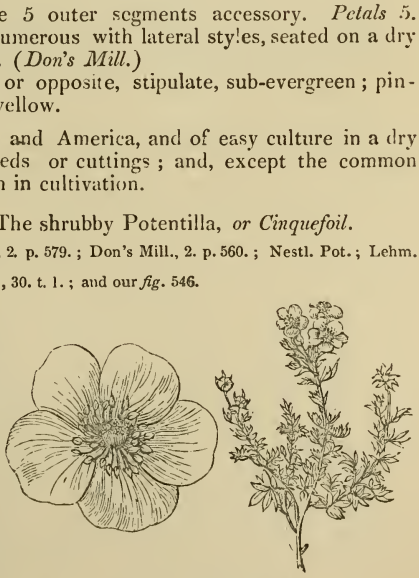
*Leaves* compound, alternate or opposite, stipulate, sub-evergreen; pinnately cut. *Flowers* white or yellow.

Shrubs low, natives of Europe and America, and of easy culture in a dry soil. They are propagated by seeds or cuttings; and, except the common species, P. fruticòsa, are not much in cultivation.

1. P. frutico'sa *L.* The shrubby Potentilla, *or Cinquefoil.*

*Identification.* Lin. Sp., 709.; Dec. Prod., 2. p. 579.; Don's Mill., 2. p. 560.; Nestl. Pot.; Lehm. Pot.; Smith's Eng. Flora, 2. p. 4'6.
*Engravings.* Eng. Bot, t. 88.; Nestl. Pot., 30. t. 1.; and our *fig.* 546.

*Spec. Char., &c.* Stem shrubby. Leaves pinnately cut, hairy; the lobes oblong, lanceolate, entire, approximate, of nearly the same colour on both surfaces. Stipules lanceolate, membraneous, acute. Inflorescence rather corymbose. Flowers yellow. Sepals pilose, lanceolate, acute, broad at the base. Bracteas linear-lanceolate, indistinctly petioled. Corolla longer than the calyx. Receptacle very hairy. (*Dec. Prod.*) A roundish bush. England, Germany, the Pyrenees, and other places; in England, in Middleton, Teesdale; and in Rock Forest, Clare, in Ireland. Height 2 ft. to 4 ft. Flowers yellow; July and August. Fruit brown; ripe in October.



546. Potentilla fruticòsa.

*Varieties*, according to Seringe, in *Dec. Prod.*

- *P. f.* 2 *dahùrica* Ser. P. dahùrica *Nestl. Pot.* 31. t. 1.; P. fruticòsa β *Lehm. Pot.* 32. — Glabrous. Lobes of the leaves 3—5, pinnately cut. Sepals shorter and broader than the bracteoles. Dahuria. Introduced in 1824; and producing its yellow flowers in July. Plants in the Hort. Soc. Garden, and in the Epsom Nursery.
- *P. f.* 3 *tenuíloba* Ser.; P. fruticòsa β *Nestl. Pot.* 30., *Lehm. Pot.* 32. var. γ; P. floribúnda *Ph. Fl. Amer. Sept.* 1. p. 355., *Watson's Dend. Brit.* t. 70.; P. tenuifòlia *Schlectend. Berl. Mag.*, according to *Lehm. Pot.* 32. (Our *fig.* 547.) — Sepals and lobes of the leaves narrow, and with a slight hoary silkiness. North America; where it is a low-growing shrub, not above 18 in. high. It was also found by Pallas in Siberia. The handsomest variety of the species.

547. P. f. tenuíloba.

2. P. GLA'BRA *Loda.* The glabrous Potentilla.

*Identification.* Lodd. Bot. Cab., t. 914.; Dec. Prod., 2. p. 594.; Don's Mill., 2. p. 561.
*Synonymes.* P. fruticòsa álba *Busch*, according to *Lodd. Bot. Cab.*, t. 914.
*Engravings.* Lodd. Bot. Cab., t. 914.; and our *fig.* 548.

*Spec. Char., &c.* Frutescent. Branches pendulous, purple. Leaves pinnately cut into 5 entire lobes. Flowers terminal, white, of the size of those of the wood strawberry (Fragària vésca). (*Dec. Prod.*) A beautiful little shrub. Siberia. Height 2 ft. to 4 ft. Introduced in 1818. Flowers white; June to August. Fruit brown; ripe in September.

548. P. glàbra.

It differs from P. fruticòsa in being perfectly smooth in all its parts, and in having pendulous branches and undulated leaves. It thrives best in a mixture of loam and peat, is of slow growth, and difficult to increase, except by seed.

3. P. SALESO'VII Steph. Salesovius's Potentilla.

*Identification.* Steph., according to Willd. Enum., p. 552.; Nestl. Pot., 31.; Lehm. Pot., 35. t. 1.; Dec. Prod., 2. p. 583.
*Engraving.* Lehm. Pot., 35. t. 1.; and our *fig.* 549.

*Spec. Char., &c.* Habit resembling that of Cómarum palústre. Stem suffruticose. Leaves pinnately cut, coriaceous. Lobes oblong, acutely serrate, pubescent above upon the veins, whitely tomentose beneath. Stipules lanceolate, very acute, entire, rather filmy at the edge. Flowers large, white, upon short peduncles, and grouped. Sepals lanceolate, very acute, broad, almost as long as the petals, which are obovate. Bracteoles very narrow, smaller than the sepals. Receptacle lanuginose. (*Dec. Prod.*) A low shrub. Siberia. Height 1 ft. to 2 ft. Introduced in 1823. Flowers white; June and July. Fruit brown; ripe in September.

549. P. Salesòvii.

*Cómarum palústre* L. (Eng. Bot., t. 172.), Potentilla Cómarum *Scop.*, a well known British plant, found in boggy soils, with somewhat ligneous shoots, and showy flowers of a deep dingy purple, may be added to this order, and may prove useful in particular situations, on the margins of ponds.

## Genus XI.

COWA'N*IA* D. Don. The Cowania. *Lin. Syst.* Icosándria Polygýnia.

*Identification.* D. Don, in Sw. Fl. Gard., 2d series.
*Derivation.* In honour of *James Cowan*, a London merchant, who several times visited Mexico and Peru, whence he introduced a great many plants.

*Gen. Char. Calyx* 5-cleft. *Petals* 5. *Ovaries* 5—14. *Ovule* erect. *Styles* terminal, continuous. *Achenia* adorned with the plumose persistent style. (*D. Don.*)

*Leaves* simple, alternate, stipulate, evergreen; wedge-shaped, oblong, pinnatifid, plaited. *Flowers* terminal, solitary, almost sessile, red. — Shrub; native of Mexico; very ornamental, but somewhat tender in British gardens.

1. C. PLICA'TA *D. Don.* The plaited-*leaved* Cowania.

*Identification.* Swt. Brit. Flor. Gard., t. 400.; Gard. Mag., 13. p. 452.
*Engravings.* Swt. Brit. Fl. Gard., t. 400.; and our *fig.* 550.

*Spec. Char., &c.* Leaves wedge-shaped, oblong, pinnatifid, plaited. (*D. Don.*) A rigid, evergreen, decumbent, much-branched shrub. Mexico. Height 1 ft. to 2 ft. Introduced in 1835. Flowers lark red; June and July. Naked young wood dark brown.

550. Cowania plicàta.

Branches copiously clothed with stalked glands. Petioles of the leaves very short, slightly channeled above, sheathing at the base. Stipules adherent. Flowers, when protruding from the bud exactly like those of *Ròsa*. This promising evergreen shrub, being extremely difficult to propagate, has been lost, for the present, to British gardens.

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## Sect. IV. *Ro'seæ Dec.*

## Genus XII.

*RO'SA Tourn.* The Rose Tree. *Lin. Syst.* Icosándria Polygýnia.

*Identification.* Tourn. Inst., 1. p. 636. t. 408.; Lin. Gen., 631.; Lam. Ill., t. 440.; Lindl. Ros. Mon., 8vo, 1820; Pronville's Nomen. Rais., 1818, Monog. Ros., 1824; Don's Mill., 2. p. 564.
*Synonymes.* Rhodóphora *Neck. Elem.*; Rosier, *Fr.*; Rosenstock, *Ger.*; Roozeboom, *Dutch*; Rosajo, *Ital.*; Rosal, *Span.*; and Roseira, *Portuguese.*
*Derivation.* From *rhos*, red, Celtic; in reference to the colour of the flowers of most of the species.

*Gen. Char. Calyx* with the tube contracted at the mouth, and with the segments usually pinnately divided. *Petals* 5. *Stamens* numerous. *Carpels* numerous, bony, inserted on the inside of the tube of the calyx, which at length becomes baccate and encloses them. They are dry and indehiscent, bearing each a style on the inner side. (*Don's Mill.*)

*Leaves* compound, alternate, stipulate, deciduous or evergreen; inparipinnate. *Stipules* attached to the petiole. *Prickles* simple. *Flowers* large, showy; red, white, or yellow; fragrant.

Shrubs, for the most part deciduous; natives of Europe, and of the tem-

perate regions of Africa, Asia, and America, but not of Australia; and they have been in cultivation in the Old World, for the beauty and fragrance of their flowers, from time immemorial. As the culture of roses belongs more to floriculture than to arboriculture, it will be found given at length in our *Encyclopædia of Gardening*, and in the first edition of this work. All the species may be propagated by cuttings of the roots, cuttings of the young wood in a growing state, by layers, or by budding or grafting; and they will all thrive in loamy soil, dry and rich, rather than poor. The genus *Rosa* is in a state of confusion still greater than that which subsists among the different kinds of *Rubus*; nor can it well be otherwise, when we consider that the greater number of kinds in cultivation are garden productions, and that the wild kinds differ exceedingly according to soil and situation, and have been chiefly described by botanists from dried specimens. We have adopted the arrangement in Don's *Miller*, with the exception of omitting the first section, Simplicifoliæ, now made a separate genus by Dr. Lindley. Where the species arranged under a section are natives of different countries, it may fairly be presumed, that there is at least one in each country entitled to be considered a species; or, at least, it may be convenient to do so, in the present state of our knowledge. Nature, it is observed in the *Nouveau Du Hamel*, "appears scarcely to have placed any limit between the different species of the rose; and, if it is already very difficult to define the wild species, which have not yet been modified by culture, it is almost impossible to refer to their original type the numerous varieties which culture has made in the flowers of species already so nearly resembling each other."

## § i. *Feròces* Lindl. Mon. p. 3.

*Derivation.* From *ferox*, fierce; in reference to the branches being thickly beset with prickles.

*Sect. Char.* Branches clothed with permanent tomentum. Fruit naked. The plants contained in this section are a truly natural group; they are low shrubs, losing their leaves early in autumn, and are then remarkable for their hoary branches, bristles, and numerous prickles. Their fruit is perfectly smooth, which separates them from the next section, in which the fruit is downy. Sepals usually toothed. (*Don's Mill.*) — Deciduous low bushes, natives of Caucasus and Kamtschatka.

### 1. *R.* FE'ROX *Lawr.* The fiercely-*prickled* Rose.

*Identification.* Lawr. Ros., t. 42.; Don's Mill., 2. p. 565.
*Synonymes.* *R.* kamtschática *Red. Ros.* 1. p. 47.; *R.* kamtschática β fèrox *Ser.* in *Dec. Prod.* 2. p. 607.; *R.* echinàta *Dupont.*
*Engravings.* Lawr. Ros., t. 42.; Red. Ros., 1. p. 47. t. 12.; and our *fig.* 551.

*Spec. Char., &c.* Prickles all alike in shape, and much crowded. Flowers large, red. Fruit globose, scarlet. (*Don's Mill.*) A very prickly shrub. Caucasus. Height 3 ft. to 4 ft. Introduced in 1796. Flowers large, red; July and August. Fruit scarlet; ripe in September.

*Variety.*

R. *f.* 2 *nitens* Lindl. in *Bot. Reg.* t. 824., *Ser.* in *Dec. Prod.* ii. p. 607., has shining pale green glabrous leaves, and pale crimson flowers. Deserving a place in collections on account of its singularity.

551. *Rosa ferox.*

### 2. *R.* (F.) KAMTSCHA'TICA *Vent.* The Kamtschatka Rose.

*Identification.* Vent. Cels., t. 67.; Don's Mill., 2. p. 565.
*Engravings.* Vent. Cels., t. 67.; N. Du Ham., vol. 7. t. 10. f. 2.; and our *fig.* 552.

*Spec. Char., &c.* Prickles infra-stipular, falcate, large. Leaves opaque. Flowers solitary, deep red. Fruit spherical, scarlet, less than that of *R.* fèrox. (*Don's*

*Mill.*) Kamtschatka, in dry rocky places. Height 3 ft. to 4 ft. Introduced in 1791. Flowers deep red; June and July. Fruit scarlet; ripe in September.

From the appearance of the plants bearing this name in the extensive collection in Messrs. Loddiges's arboretum, we should consider it to be only a variety of *R. fèrox.* It is, however, very distinct, and, from the rich colour of its flowers and fruit, well deserving a place in collections.

552. *R.* (f.) kamtschática.

## § ii. *Bracteàtæ.*

*Sect. Char.* Branches and fruit clothed with permanent tomentum. This section is readily distinguished from the last by the woolliness of the fruit. Leaves dense, usually shining, and prickles placed under the stipules in pairs. Sepals simple, or nearly so. (*Don's Mill.*) — Evergreen, or sub-evergreen bushes. Natives of China and Nepal.

### ✱ 3. *R.* BRACTEA'TA *Wendl.* The *large*-bracted Rose.

*Identification.* Wendl. Obs., 50.; Red. Ros., 1. p. 35., ic.; Lindl. Ros. Mon., p. 10.; Dec. Prod., 2. p. 602.; Don's Mill., 2. p. 565.
*Synonyme.* Lord Macartney's Rose.
*Engravings.* Wendl. Hort. Herrenhaus., fasc. 4. t. 22.; N. Du Ham., 7. t. 13.; and our *fig.* 553.

*Spec. Char., &c.* Evergreen. Branches upright, tomentose. Prickles stout, recurved, in many instances in pairs. Leaflets 5—9, obovate, subserrate, coriaceous, glossy, glabrous. Stipules scarcely attached to the petiole, bristle-shaped, but fringed. Flowers solitary, terminal, white, large. Peduncles and calyxes tomentose. Fruit globose, large, orange red. (*Dec. Prod.*) Evergreen. China. Height 5 ft. to 6 ft. Introduced in 1795. Flowers large, showy, white, solitary, nearly sessile; June to October. Fruit orange red; ripe in October.

It flowers abundantly, but is rather tender, on which account it succeeds best when trained against a wall.

553. *R.* bracteàta.

*Varieties.*

- ✱ R. *b.* 2 *scabricaúlis* Lindl. Rosar. Monog. p. 10. (Sims Bot. Mag., t. 1377.) — Branches bristly. Prickles smaller than in the species, and rather straight. China, province of Tchetchiang. (*Dec. Prod.*)
- ✱ R. *b.* 3 *flòre pl no* Hort.—Flowers double, but never expanding freely.
- ✱ R. *b.* 4 *Maria Leonida* Hort.—Flowers double, white, yellowish pink in the centre, expanding freely. One of the finest of autumnal roses.

The species and the varieties, being somewhat tender, succeed best when trained against a wall. They are very ornamental from their shining evergreen foliage, as well as from their flowers.

### ✱ 4. *R.* MICROPHY'LLA *Roxb.* The small-leafleted Rose.

*Identification.* Roxb. Fl. Ind ined., according to Lindl. Rosar. Monog., p. 9. 145, 146.; Dec. Prod., 2. p. 602.; Don's Mill., 2. p. 565.
*Synonyme.* Hoi-tong-hong, *Chinese.*
*Engravings.* Bot. Reg., t. 919.; and our *fig.* 554.

*Spec. Char., &c.* Stem almost without prickles. Leaflets glossy, sharply serrated, veiny beneath, with densely netted anastomosing veins. Stipules very narrow, unequal. Flowers double, of a delicate rose colour. Calyx densely invested with prickles. Sepals short, broadly ovate, ech nate, ending in a point. Prickles having at the base two longitudinal furrows.

554. *R.* microphýlla.

(*Dec. Prod.*) Sub-evergreen. China Height 2 ft. to 3 ft. Introduced in 1828. Flowers very large, double, and of a delicate blush colour; August to October. Fruit orange red; ripe in October.

An interesting little shrub, but somewhat tender, like *R.* bracteàta. There is a variety in the Hort. Soc. Garden called *R.* m. álba.

♃ 5. *R.* INVOLUCRA'TA *Roxb.* The involucred-*corymbed* Rose.

*Identification.* Roxb. Fl. Ind. ined., according to Lindl. Rosar. Monog., p. 8.; Dec. Prod., 2. p. 602; Don's Mill., 2. p. 565.
*Synonymes.* *R.* Lindleyàna Tratt. Ros. 2. p. 109.; *R.* palústris *Buchan.* (*Ham.*) *MSS.*
*Engravings.* Bot. Reg., t. 739.; and our *fig.* 555.

*Spec. Char., &c.* Shoots long, tender. Branches pale brown, tomentose, scarcely prickly. Leaflets 3—9, elliptical-lanceolate, tomentose beneath. Stipules hardly attached to the petiole, bristle-like-fringed. Flowers terminal, mostly solitary, white. Peduncles and calyxes tomentose. (*Dec. Prod.*) Deciduous, branchy. Nepal and China. Height 3 ft. to 4 ft. Introd. 1818. Flowers white; June and July. Fruit orange red; ripe in October.

555. *R.* involucràta.

Seringe seems to consider this as a variety of *R.* bracteàta. The flowers are in corymbs, surrounded by three or four approximate leaves. The plants are rather tender, and succeed best against a wall, where they flower magnificently. Not common in collections. Lodd.

## § iii. *Cinnamòmeæ* Lindl. Ros. p. 13.

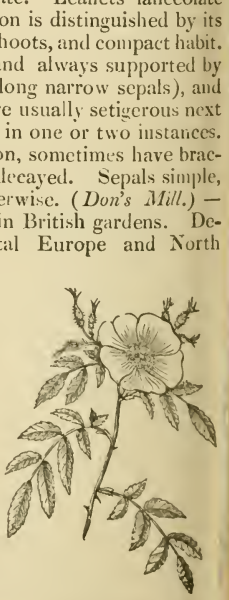
*Sect. Char.* Plants setigerous or unarmed, bracteate. Leaflets lanceolate glandless. Disk thin, never thickened. This section is distinguished by its long lanceolate leaflets without glands, its upright shoots, and compact habit. Flowers red, never solitary, except by abortion, and always supported by bracteas. Fruit round, small, red (soon losing its long narrow sepals), and with small, smooth, shining carpels. The shoots are usually setigerous next the ground; but rarely so towards the apex, except in one or two instances. *R.* alpìna and *R.* aciculàris, of the following division, sometimes have bracteas; but their sepals never fall off till the fruit is decayed. Sepals simple, entire, or nearly so, unless when mentioned otherwise. (*Don's Mill.*) — Plants of most of the species are in cultivation in British gardens. Deciduous rambling bushes; natives of Continental Europe and North America, and some of them of Britain.

### A. *Species Natives of North America.*

♃ 6. *R.* LU'CIDA *Ehrh.* The shining-*leaved* Rose.

*Identification.* Ehrh. Beitr., 4. p. 22.; Lindl. Rosar. Monog., p. 17.; Dec. Prod., 2. p. 602.; Don's Mill., 2. p. 565.
*Synonymes.* *R.* rùbra lùcida *Rossig. Ros.*, t. 7. and t. 25. f. 1.; *R.* lùcida *Jacq. Fragm.* 71.; Rose Turneps; Rosier à Feuilles de Frêne, *Fr.*
*Engravings.* Red and Thor. Ros., 1. p. 45. ic.; N. Du Ham., vol. 7. t. 7.; and our *fig.* 556.

*Spec. Char., &c.* Prickles recurved, or none. Leaflets 5—9, lanceolate-elliptical, coriaceous, bluntly serrated, glossy. Stipules dilated, large, finely serrated, and extended as far as to the leaflets. Peduncles somewhat hispid. Flowers red, and opening late in the season. Sepals almost entire,


556. *R.* lùcida.

appendicled, spreading. Fruit oblately globose, a little hispid or glabrous, scarlet. (*Dec. Prod.*) An erect shining leaved shrub. North America, from New York to Carolina; near Boston, in bogs, and on the edges of marshes; and in Newfoundland. Height 4 ft. to 6 ft. Introduced in 1724. Flowers red, overtopped by the leaves and young branches; June to August. Fruit bright red; ripe in October.

A handsome species, on account of its shining foliage, and one which is very hardy; but the flowers have a very disagreeable smell.

### 7. *R.* NI'TIDA *W.* The glossy-*leaved* Rose.

*Identification.* Willd. Enum., 544.; Lindl. Rosar. Monog., p. 13.; Dec. Prod., 2. p. 603.; Don's Mill., 2. p. 565.
*Synonymes.* *R.* Redutèa rufèscens *Thory* in *Red. Ros.* 1. p. 103. ic.; the dwarf Labrador Rose
*Engravings.* Lindl. Rosar. Monog., p. 13. t. 2.; Redouté Ros. 1. p. 103. ic.; and our *fig.* 557.

*Spec. Char., &c.* Dwarf and reddish in aspect. Stem and branches almost covered with slender, rather equal, prickles. Leaflets 5—9, rather rigid, lanceolate, glossy. Stipules large, finely serrated, extending as far as to the leaflets. Flowers red. Peduncle bristly. Sepals spreading. Fruit bristly, shining, and scarlet. (*Dec. Prod.*) A shrub beset with straight red spines. Newfoundland. Height 2 ft. to 3 ft. Introduced in 1807. Flowers deep red; June to August. Fruit depressed, spherical, bright scarlet; ripe in September.

557. *R.* nitida.

This is an interesting plant, from its dwarf stature, its abundant reddish prickles, its glossy leaves, its flowers, and its fruit.

### 8. *R.* *RA'PA* *Bosc.* The Turnip-*fruited* Rose.

*Identification.* Bosc Dict. d'Agric.; Lindl. Rosar. Monog., p. 15.; Dec. Prod., 2. p. 602.; Don's Mill., 2. p. 565.
*Synonymes.* *R.* túrgida *Pers. Ench.* 2. p. 49.; *R.* fraxinifòlia *Dumont* in *Cours. Bot. Cult.*
*Engravings.* Red. and Thor. Ros., 2. p. 7. ic.; and our *fig.* 558.

*Spec. Char., &c.* Taller than *R.* lùcida, and spreading. Branches without prickles. Leaflets oblong, undulate, shining. Fruit hemispherical. Closely allied to *R.* lùcida, of which it is very likely a variety. (*Dec. Prod.*) Petals always multiplied, smaller than those of *R.* lùcida; bright red. Fruit deep red. Sepals compound. A tall straggling bush. North America, in the warmer states. Height 3 ft. to 4 ft. Introduced ?. Flowers double, bright red; June to August. Fruit deep red; ripe in October.

558. *R.* Ràpa.

Only known in its double-flowered state in British gardens, where it is a freely growing hardy plant, with large double flowers.

### 9. *R.* PARVIFLO'RA *Ehrh.* The small-flowered, *or Pennsylvanian*, Rose.

*Identification.* Ehrh. Beitr., 4. p. 21.; Don's Mill., 2. p. 565.
*Synonymes.* *R.* hùmilis *Marsh Arb.* 136.; *R.* carolinìana *Mich. Fl Bor. Amer.* 1. p. 295.; *R.* carolina γ et δ *Ait. Hort. Kew.* ed. 2. vol. 3. p. 260.; Pennsylvanian Rose, *Lawr. Ros.* t. 3. and t. 66., and of the nurseries.
*Engraving.* Smith Insect. Georg., 1. p. 49. t. 25.

*Spec. Char., &c.* Dwarf. Stipules linear. Prickles acicular. Leaflets lanceolate, smoothish, sharply serrated. Calyxes clammy. Flowers usually

in pairs. (*Don's Mill.*) A low weak shrub. North America, on the declivities of hills, in the states of New York and Carolina. Height 2 ft. Introduced in 1724. Flowers pale blush; June to August. Fruit red; ripe in October.

559. *R.* parviflòra flòre plèno.

*Variety.*

α R. *p.* 2 *flòre plèno* Red. Ros. 2. p. 73., and our *fig.* 559. — Flowers double, pale blush, unexpanded. A neat little rose, but not in very general cultivation.

### 10. *R.* FRAXINIFO'LIA *Börk.* The Ash-leaved Rose.

*Identification.* Börk. Holz., 301.; Don's Mill., 2. p. 566.
*Synonymes.* *R.* virginiàna *Mill. Dict.* No. 10.; *R.* blànda α *Sol. MSS. Jacq. Fragm.* 70. t. 105.; *R.* corymbòsa *Bosc Dic. d'Agr.* ex *Desf. Cat. Hort. Par.* p. 272.?; *R.* alpìna β *Ait. Hort. Kew.* ed. 2. vol. 3. p. 265.; *R.* alpìna lævis *Red. Ros.* 1. p. 57., *Lawr. Ros.* t. 75.
*Engravings.* Bot. Reg., t. 458.; Lawr. Ros., t. 75.; and our *fig.* 560

*Spec. Char., &c.* Tall, unarmed. Branches straight, glaucescent. Leaflets opaque, undulated, and glabrous. (*Don's Mill.*) Branches dark purple, with a pale blue bloom. Flowers small, red, in few-flowered cymes. Fruit naked, small, round or ovate, of a dull pale red. A glabrous shrub. Native of Newfoundland, and on the north-west coast of America. Height 4 ft. to 6 ft. Introduced ?. Flowers red; May and June. Fruit dull pale red; ripe in September.

560. *R.* fraxinifòlia.

*Other North-American Species.*—*R.* Woódsii Lindl., *R.* carolìna *Lin.*, *R.* Lindlèyi Spreng., are described in our first edition; and the first two are in Messrs. Loddiges's collection.

## B. *Species Natives of Nepal.*

### 11. *R.* MACROPHY'LLA *Lindl.* The long-leaved Rose.

*Identification.* Lindl. Ros. Monog., p. 35.; Don's Mill., 2. p. 566.
*Engravings.* Lindl. Ros. Monog., t. 6.; and our *fig.* 561.

*Spec. Char., &c.* Unarmed. Leaves very long; leaflets 5—11, lanceolate. Petioles with a few glands, which, as well as the leaflets, are woolly beneath. Sepals narrow, longer than the petals, which are apiculated. (*Don's Mill.*) A smooth shrub. Gossainthan. Height 5 ft. to 6 ft. Introduced in 1830. Flowers red, on villous peduncles, and furnished with a few unequal setæ, as well as the fruit.

Dr. Lindley observes of this rose, that its leaves are the largest he has ever seen; that it cannot be confounded with any thing else; and that it may be considered the link between Cinnamòmeæ and Pimpinellifòliæ. Horticultural Society's Garden.

561. *R.* macrophylla.

## C. *Species Natives of Continental Europe.*

### 12. *R.* CINNAMO'MEA *Besl.* The Cinnamon-*scented* Rose.

*Identification.* Besl. Hort. Eyst. Vern. Ord., 6. p. 5.; Lin. Sp., 703.; Don's Mill., 2. p. 566.
*Synonymes.* *R.* fœcundìssima *Munch. Hausv.* 5. p. 279., *Fl. Dan.* t. 1214.; *R.* majàlis *Herm. Diss.* 8.
*Engravings.* Lindl. Ros., t. 5.; Fl. Dan., t. 1214.; and our *fig.* 562.

*Spec. Char., &c.* Tall, cinereous. Branches straight. Prickles stipular, straightish. Stipules dilated, undulated. Leaflets oblong, obtuse, wrinkled, tomentose beneath. (*Don's Mill.*) Flowers solitary, or 2—3 together,

pale or bright red. Fruit round, naked, and crimson. The double-flowered variety is most common in gardens. An upright shrub. Native of most parts of Europe, and a doubtful native of England. Height 5 ft. to 6 ft. Flowers pale or bright red; May and June. Fruit crimson; ripe in September.

A very desirable sort, on account of its fragrance, which resembles that of cinnamon. There is a semi-double variety; and the single state is supposed to be identical with *R.* majàlis below.

562. *R.* cinnamòmea.

*Other European Species not Natives of Britain.* — *R.* frutetòrum *Bess.*, *R.* taúrica *Bieb.*, and *R.* dahùrica *Pall.*, are described in our first edition, and the first two are in Messrs. Loddiges's collection.

## D. *Species Natives of Britain.*

### 13. *R.* (*c.*) MAJA'LIS *Retz.* The May Rose.

563. *R.* majàlis.

*Identification.* Retz. Obs. Bot., 3. p. 33.; Don's Mill., 2. p. 566.
*Synonymes.* *R.* mùtica *Fl. Dan.* 688.; *R.* spinosìssima *Gorter. Ingr.* 78.; *R.* collincola *Ehr. Beitr.* 2. p. 70.; *R.* cinnamòmea *Eng. Bot.* 2388.
*Engravings.* Fl. Dan., t. 688.; Eng. Bot., t. 2388.; and our *fig.* 563.

*Spec. Char., &c.* Dwarf grey. Branches straight, coloured. Prickles scattered, nearly equal. Stipules linear. Leaflets oblong, flat, glaucous, and tomentose beneath. (*Don's Mill.*) A nearly smooth shrub. Flowers usually solitary, pale red. Fruit orange red, spherical, and naked. Native of Sweden and Lapland; and of Britain, near Pontefract, in Yorkshire. Height 3 ft. to 4 ft. Flowers pale red; May and June.

This is supposed by some to be the single state of *R.* cinnamòmea.

### 14. *R.* DICKSONIA'NA Lindl. Dickson's Rose.

*Identification.* Lindl. Hort. Trans., 7. p. 224.; Eng. Bot., vol. iv. p. 51.; Don's Mill., 2. p. 566.
*Engravings.* Eng. Bot., t. 2707.; and our *fig.* 564.

*Spec. Char., &c.* Branches flexuous, setigerous, armed with a few slender scattered prickles. Leaflets folded together, unequal, with coarse double serratures. Stipules, petioles, and sepals compound. Styles stretched out, glabrous. (*Don's Mill.*) A large prickly shrub. Ireland. Height 5 ft. to 6 ft. Flowers white or pale pink; June and July.

564. *R.* Dicksoniana.

## § iv. *Pimpinellifòliæ* Lindl.

*Sect. Char., &c.* Plants bearing crowded, nearly equal, prickles, or unarmed. Bractless, rarely bracteate. Leaflets ovate or oblong. Sepals connivent, permanent. Disk almost wanting. This section is essentially different from the last in habit, but in artificial characters they approach very nearly. It, however, may be distinguished by the greater number of leaflets; which vary from 7 to 13, and even to 15, instead of from 5 to 7. The flowers are also universally without bracteas; except in the *R.* alpìna, *R.* Sabìni, *R.* Doniàna, and, perhaps, *R.* marginàta. These, having connivent permanent sepals, cannot be confounded with the preceding division; nor, on account of their disk, with the following. There is no instance of stipular prickles in the present tribe. The sepals are entire, or nearly so, unless

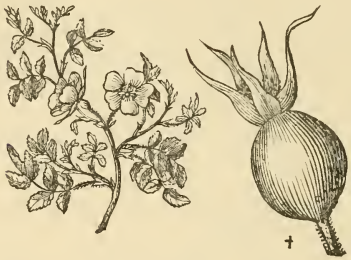
when mentioned otherwise. (*Don's Mill.*)—Deciduous: forming bushes partly low and dense, and partly large and rambling. Natives of Britain, Continental Europe, Asia, and North America.

### A. *Species Natives of Europe.*

#### 15. *R.* ALPI'NA *Lin.* The Alpine Rose.

*Identification.* Lin. Sp., 703.; Don's Mill., 2. p. 567.
*Synonymes.* *R.* rupéstris *Crantz Austr.* 85.; *R.* monspellaca *Gouan Monsp.* 255.; *R.* inérmis *Mill. Dict.* No. 6., *R.* hýbrida *Vill. Dauph.* 3. p. 554.; *R.* lagenària *Vill.* l. c. p. 563.; *R.* bifìòra *Krok. Fl. Sil.* 2. p. 157.
*Engravings.* Jacq. Fl. Austr., t. 279.; Lindl. Bot. Reg., t. 474.; and our *fig.* 565.

*Spec. Char., &c.* Unarmed. Fruit elongated, pendulous. Peduncles hispid. (*Don's Mill.*) Flowers erect, blush-coloured, solitary. Fruit orange red, oblong or obovate, with long sepals, generally pendulous. An unarmed shrub. Alps of Austria, hills in the South of France, Silesia, Bohemia Dauphiné, Switzerland, &c. Height 5 ft. to 8 ft. Introduced in 1683 Flowers blush-coloured; June and July. Fruit orange red; ripe in September.



565. *R.* alpìna.

566. *R.* a. læ'vis

*Varieties.*

- R. *a.* 2 *læ'vis* Ser., but not of Desv. or Red.; *R.* Sanguisórba majòris, &c., *Dill. Elth.*; *R.* alpìna glàbra *Desv.*; *R.* a. vulgàris *Red. Ros.* 2. p. 111., and our *fig.* 566.; has the stem, peduncles, and calyx quite glabrous, and the fruit oblong.
- R. *a.* 3 *speciòsa* Hort. Drummond's Thornless Rose. — A very beautiful climbing variety, raised by Mr. Drummond in the Cork Botanic Garden, about 1820.

*Other Varieties.* Fourteen are described in the first edition of this work, but they are chiefly of botanical interest.

#### 16. *R.* SUA'VIS *Willd.* The sweet Rose.

*Identification.* Willd. Enum. Suppl., p. 37.; Link Enum., 2. p. 57.; Don's Mill., 2. p. 567.
*Engravings.* Hayne Abbild., t. 40.; and our *fig.* 567.

*Spec. Char., &c.* Stem hispid. Leaves glabrous, glaucescent beneath. Peduncles and petioles clothed with glandular bristles. (*Don's Mill.*) Petals deep purple, deeply 2-lobed. Fruit oblong, glabrous. A hispid shrub. Native country unknown, most probably Europe. Height 3 ft. to 4 ft. Introduced in 1818 Flowers deep purple; June and July. Fruit scarlet, ripe in September.

567. *R.* suavis.

This very distinct variety, or perhaps species, of rose is probably at present wanting in British collections; for it must not be confounded with *R*òsa suavèolens or with *R*òsa suavifòlia, both described in *Le Botaniste Cultivateur* as varieties of *R.* rubiginòsa, or synonymes to that species.

### 17. *R.* SULPHU'REA *Ait.* The sulphur-*coloured flowered* Rose.

*Identification.* Ait. Hort. Kew, 2. p. 201., Lindl. Ros., t. 77.; Don's Mill., 2. p 568.
*Synonymes.* *R.* hemisphérica *Herm. Diss.* 18.; *R.* glaucophýlla *Ehrh. Beitr.* 2. p. 69.; *R*ò*sa* lùtea flòre plèno *Rai. Hist.* 1475. No. 31.; *R.* lùtea *Brot. Fl. Lus.* 1. p. 337.; the double yellow Rose.
*Engravings.* Lindl. Ros. t. 77.; Bot. Reg., t. 46.; and our *fig.* 568.

*Spec. Char., &c.* Stipules linear, divaricate, dilated at the apex. Leaflets glaucous, flattish. Tube hemispherical. (*Don's Mill.*) Stem prickles unequal, scattered. A deciduous shrub. Levant. Height 4 ft. to 10 ft. Introduced before 1629. Flowers fine transparent yellow, double; July.

568. *R.* sulphùrea.

This sort does not flower freely, except in open airy situations; and, if trained against a wall, exposed to the north or east rather than to the south. Its flower buds are apt to burst on one side before they expand, and consequently to become deformed; to prevent this, the blossom buds should be thinned, and care taken that they have abundance of light and air. Watering it freely in the flowering season is found advantageous; and the shoots, in general, ought not to be shortened. This beautiful species is said to flower freely, if grafted on the musk cluster at 8 or 10 feet from the ground; or it will do well on the China rose.

### 18. *R.* SANGUISORBIFO'LIA *Donn.* The Burnet-leaved Rose.

*Identification.* Donn Hort. Cant., ed. 8. p. 169.; Don's Mill., 2. p. 569.
*Synonymes.* *R.* spinosissima var. sanguisorbifòlia *Lindl. Ros.* p. 51.; *R.* spinos. var. macrophýlla *Ser.* in *Dec. Prod.* 2. p. 609.
*Engraving.* Our *fig.* ., in p. .

*Spec. Char., &c.* Tall. Prickles nearly equal. Leaflets 9—11, oblong, glabrous, simply serrated. Fruit globose, depressed, dark. (*Don's Mill.*) An erect shrub. Habitat unknown, most probably Europe. Height 3 ft. to 5 ft. Flowers white; May and June. Fruit black; ripe in September.

Easily distinguished by the number of its leaflets, the shortness of its peduncles, and by its globose depressed fruit.

## B. *Species Natives of Siberia.*

### 19. *R.* GRANDIFLO'RA *Lindl.* The large-flowered Rose.

*Identification.* Lindl. Ros., p. 53.; Don's Mill., 2. p. 569.
*Synonyme.* *R.* pimpinellifòlia *Bieb. Fl. Taur.* 2. p. 394.
*Engravings.* Bot. Reg., t. 888.; and our *fig.* 569.

*Spec. Char., &c.* Branches without bristles. Prickles nearly equal, distant. Leaflets flat, glabrous, simply serrated. (*Don's Mill.*) A prickly shrub. Siberia. Height 4 ft. to 6 ft. Introduced in 1818. Flowers white; May and June. Fruit dark; ripe in Sept.

569. *R.* grandiflòra.

Differs from *R.* spinosíssima, though scarcely so much as to render it a distinct species.

*R.* aciculàris *Lindl.*, and *R.* oxyacántha *Bieb.*, are described in our first edition.

## C. *Species Natives of North America and Siberia.*

### 20. *R.* LUTE'SCENS *Pursh.* The yellow *American* Rose.

*Identification.* Pursh Fl. Amer. Sept., vol. 2. p. 735.; Lindl. Ros., p. 47.; Don's Mill., 2. p. 568
*Synonyme.* *R.* híspida *Curt. Bot. Mag.* t. 1570.
*Engravings.* Lindl. Ros., t. 9.; Bot. Mag., t. 1570.; and our *fig.* 570.

*Spec. Char., &c.* Prickles of the branches crowded, unequal, slender, reflexed; of the branchlets, small and nearly equal. Leaflets flat, glabrous, simply serrated. (*Don's Mill.*) An erect shrub. North America and Siberia. Height 4 ft. to 6 ft. Introduced in 1780. Flowers pale yellow; May and June. Fruit large, ovate, black.

A very distinct variety, or probably species, well deserving a place in botanical collections.

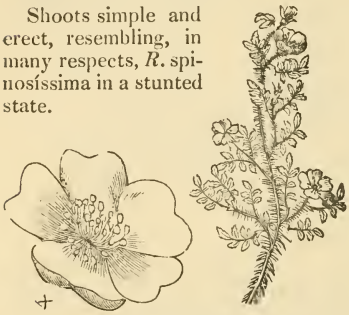
570. *R.* lutéscens.

21. *R.* MYRIACA'NTHA *Dec.* The myriad-prickled Rose.

*Identification.* Dec. Fl. Fr., 4. p. 439.; Don's Mill., 2. p. 562.
*Synonymes.* *R.* parvifòlia *Pall. Ros.* 62. ?; *R.* provinciàlis *Bieb. Fl. Taur.* 1. p. 396. ?; *R.* spinosissima var. *η* myriacántha *Ser.* in *Dec. Prod.* 2. p. 608.
*Engravings.* Lindl. Ros., t. 10.; and our *fig.* 571.

*Spec. Char., &c.* Prickles unequal, larger ones dagger-formed. Leaflets glandular, glabrous, orbicular. (*Don's Mill.*) A diminutive spiny shrub. Siberia, Tauria, and also Dauphiné, and near Montpelier. Height 1 ft. to 2 ft. Flowers white; May and June. Fruit dark; ripe in September.

Shoots simple and erect, resembling, in many respects, *R.* spinosíssima in a stunted state.



571. *R.* myriacántha.

572. *R.* revérsa.

22. *R.* REVE'RSA *Waldst. et Kit.* The reversed-*prickled* Rose.

*Identification.* Waldst. et Kit. Hung., 3. p. 293.; Don's Mill., 2. p. 569.
*Engravings.* Waldst. et Kit. Hung., 3. t. 264.; our *fig.* 572.

*Spec. Char., &c.* Prickles setaceous, nearly equal, reflexed. Leaves doubly serrated, pubescent. Fruit hispid. (*Don's Mill.*) A large rambling shrub. Hungary, on the mountains of Matra, in stony places. Height 2 ft. to 5 ft. Introduced in 1816. Flowers solitary, white, tinged with pink; June and July. Fruit ovate, dark purple; ripe in September.

## D. *Species Natives of Britain.*

23. *R.* SPINOSI'SSIMA *L.* The most spiny, *or Scotch*, Rose.

*Identification.* Lin. Fl. Suec., 442.; Sp., 491.; Don's Mill., 2. p. 568.
*Engravings.* Eng. Bot., t. 187.; Hayne Abbild., t. 37.; and our *fig.* 573.

*Spec. Char., &c.* Prickles unequal. Leaflets flat, glabrous, simply serrated. (*Don's Mill.*) A dwarf compact bush, with creeping suckers. Flowers small, solitary, white or blush-coloured. Fruit ovate, or nearly round, black or dark purple. A very spiny shrub. Europe; plentiful in Britain. Height 1 ft. to 2 ft. Flowers white or blush; May and June. Fruit purple or black; ripe in Sept.

*Varieties.* A great many varieties, cross-breds, and hybrids have been raised of this rose, with flowers

73 R. spinosissima.

double, semidouble, white, purple, red, and even yellow. The first double variety was found in a wild state, in the neighbourhood of Perth, by Mr. Brown of the Perth Nursery, who raised a number of others from seed. Mr. Austin of the Glasgow Nursery also raised upwards of 50 select varieties; and, subsequently, the number of these varieties for sale in the nurseries has become so great, and they are changing their names so often, that it would be useless to attempt to give a list of them in this work. In Mr. Rivers's Abridged List of Roses, in the *Rose Amateur's Guide*, the following sorts are recommended: Erebus, Guy Mannering, La Neige, Lady Baillie, Queen of May, True yellow, William the Fourth, and Venus.

### 24. *R.* RUBE'LLA *Smith.* The reddish Rose.

*Identification.* Smith Eng. Bot., 2521.; Don's Mill., 2. p. 567.
*Engravings.* Eng. Bot., 2521.; and our *fig.* 574.

574. *R.* rubélla.

*Spec. Char., &c.* Prickles slender, straight, crowded. Fruit globose. Leaflets glabrous. Peduncles bristly. (*Don's Mill.*) A low shrub, with divaricating branches. England, in Northumberland, on the sandy sea coast. Height 2 ft. to 3 ft. Flowers either blush-coloured, or white blotched with pink, delicately fragrant; July. Fruit bright scarlet; ripe in September.

A rare species, nearly allied to *R.* spinosíssima

### 25. *R.* HIBE'RNICA *Smith.* The Irish Rose.

*Identification.* Smith in Eng. Bot., 2196.; Don's Mill., 2. p. 569.
*Engravings.* Eng. Bot., t. 2196.; and our *fig.* 575.

*Spec. Char., &c.* Prickles unequal, slightly hooked, smaller ones bristle-formed. Leaflets ovate, acute, simply serrated, with the ribs hairy beneath. Sepals pinnate. Fruit nearly globular, smooth, as well as the peduncles. (*Don's Mill.*) A prickly shrub. Ireland, in the counties of Derry and Down, in thickets. Height 4 ft. to 6 ft. Flowers small, light bluish; June to November. Fruit orange-coloured; ripe Sept.

575. *R.* hibérnica

### 26. *R.* WI'LSONI Borr. Wilson's Rose.

*Identification.* Hook. Brit. Flor., p. 228.; Eng. Bot. Suppl., 2723.; Don's Mill., 2. p. 570.
*Engravings.* Eng. Bot., t. 2723.; and our *fig.* 576.

*Spec. Char., &c.* Prickles crowded, unequal, straight, intermixed with setæ. Leaflets simply serrated, hairy, their disks glandless. Sepals simple. Fruit nearly globular. (*Don's Mill.*) England, near Bangor Ferry. Height 2 ft. to 4 ft. Flowers beautiful dark pink; June and July.

576. *R.* Wilsoni.

### 27. *R.* INVOLU'TA *Smith.* The involute-*petaled* Rose.

*Identification.* Smith in Eng. Bot., 2068.; Don's Mill., 2. p. 569.
*Synonyme.* *R.* nivàlis *Donn Hort. Cant.* ed. 1. p. 170.
*Engravings.* Eng. Bot., t. 2068.; and our *fig.* 577.

*Spec. Char., &c.* Prickles very unequal, and very much crowded. Leaflets doubly serrated, pubescent. Petals convolute. Fruit prickly. (*Don's Mill.*) Petals pale red, concave. Hebrides, in the Isle of Arran, and in Glen Lyon. A low shrub. Height 2 ft. to 3 ft. Flowers pale red; June. Fruit black; ripe in September.

577. *R.* involúta.

### 28. *R.* Sabi'ni Woods. Sabine's Rose.

*Identification.* Woods in Lin. Trans., 12. p. 188.; Don's Mill., 2. p. 569.
*Engravings.* Borr. in Eng. Bot. Suppl., t. 2595.; and our *fig.* 578.

*Spec. Char., &c.* Peduncles, calyx, fruit, and branches bristly. Prickles scattered, straightish. Leaflets doubly serrated, nearly smooth, with hairy ribs. Sepals pinnate. (*Don's Mill.*) Flower stalks rather aggregate. Petals fine red. Fruit ovate, bright scarlet. An upright branchy shrub. Native of Scotland, near Dunkeld; of England, in Cumberland, Northumberland, and Yorkshire. Height 5 ft. to 8 ft. Flowers red; July. Fruit bright scarlet; ripe in September.

578. *R.* Sabini.

*Variety.* A plant in the Horticultural Society's Garden is named *R.* S. grácilis.

### 29. *R.* Donia'na Woods. Don's Rose.

*Identification.* Woods in Lin. Trans., 12. p. 185.; Don's Mill., 2. p. 579.
*Synonyme.* *R.* Sabini β *Lindl. Ros.* p. 59.
*Engravings.* Eng. Bot. Sup., t. 2601.; and our *fig.* 579.

579. *R.* Doniàna.

*Spec. Char., &c.* Peduncles bractless, bristly, as well as the globular fruit and calyx. Stem bristly and prickly, like the downy petioles. Leaflets elliptical, doubly and sharply serrated, hairy on both sides. Petals spreading. (*Don's Mill.*) Segments of the calyx simple. A large shrub. Highlands of Scotland, particularly on the mountains of Clova, Angusshire Height 4 ft. to 5 ft. Flowers pink; June and July. Fruit red; ripe in September.

*Variety.* There is a variety in the Hort. Soc. Garden, called *R.* D. hórrida; and Dr. Lindley remarks that *R.* Wílsoni Borr. (Eng. Bot. Supp. t. 2723.), *R.* Sabini*àna*, and *R.* involùta are all some of the endless varieties of *R.* móllis, our *R.* villòsa, No. 35. (*Comp. Bot. Mag.*, i. p. 189.)

This rose was named in honour of Mr. Don of Forfar.

## § v. *Centifòliæ* Lindl.

*Derivation.* From *centum*, a hundred, and *folium*, a leaf; because the species contained in this section agree in character with the hundred-leaved rose, which is so double as to seem to have a hundred petals.

*Sect. Char., &c.* Shrubs all bearing bristles and prickles. Peduncles bracteate. Leaflets oblong or ovate, wrinkled. Disk thickened, closing the throat. Sepals compound. — This division comprises the portion of the genus *R*òsa which has most particularly interested the lover of flowers. It is probable that the earliest roses of which there are any records of being cultivated belonged to this section; but, to which particular species those of Cyrene or Mount Pangæus are to be referred, it is now too late to enquire. The attar of roses, which is an important article of commerce, is either obtained from roses belonging to this division indiscriminately, as in the manufactory at Florence, conducted by a convent of friars; or from some particular kind, as in India. (*Don's Mill.*, ii. p. 571. adapted.) Deciduous bushes, generally erectish; natives of Syria, Caucasus, and Middle of Europe.

### 30. *R.* damasce'na *Mill.* The Damascus, *or Damask*, Rose.

*Identification.* Mill. Dict., No. 15.; Don's Mill., 2. p. 571.
*Synonymes.* *R.* bélgica *Mill. Dict.* No. 17.; *R.* calendàrum *Munch. Hausv.* ex *Bork. Holz.* 350., *Rossig Ros.* t. 8. and t. 33.; *R.* bífera *Pour. Suppl.* 6. p. 276., *Red. Ros.* 1. p. 107. and p. 121.; Rose à quatre Saisons.
*Engravings.* Redout Ros., 1. t. 58.; our *fig.* 580. of *R.* d. coccínea; and our *fig.* 581. of *R.* d. subálba.

*Spec. Char., &c.* Prickles unequal, larger ones falcate. Sepals reflexed

Fruit elongated. (*Don's Mill.*) A bushy shrub. Syria. Height 2 ft. to 8 ft. Introduced in 1573. Flowers large, white or red, single or double; June and July. Fruit red; ripe in September.

*Varieties.* There are nearly 100 varieties which are classed under this species; but it is very doubtful, whether many of them are not hybrids between this and other sorts. Among the names of the varieties classed under this head are, the monthly blush; the blush damask; the red and white damask; the red and white monthly; the incomparable; the crimson perpetual; and, perhaps, the handsomest variety of the species, the quatre saisons, of which there are six or eight subvarieties; the royal; and the York and Lancaster.

580. *R.* d. ecocínea.

581. *R.* damascèna subálba.

The present species may be distinguished from *R.* centifòlia by the greater size of the prickles, the greenness of the bark, the elongated fruit, and the long reflexed sepals. The petals of this species, and all the varieties of *R.* centifòlia, as well as those of other species, are employed indiscriminately for the purpose of making rose-water. *R.* damascèna is extremely beautiful, from the size and brilliant colour of its flowers.

✻ 31. *R.* CENTIFO'LIA *Lin.* The hundred-petaled, *Provence, or Cabbage,* Rose.

*Identification.* Lin. Sp., 704.; Don's Mill., 2. p. 571.

*Synonymes.* *R.* provinciàlis *Mill. Dict.* No. 18.; *R.* polyánthos *Rossig. Ros.* t. 35.; *R.* caryophýllea *Poir. Suppl.* 6. p. 276.; *R.* unguiculàta *Desf. Cat.* 175.; *R.* vàrians *Pohl Bohem.* 2. p. 171.

*Engravings.* Rossig. Ros., t. 1.; Red. Ros., 1. p. 25. t. 1.; and our *fig.* 582. of the double-flowered variety.

*Spec. Char., &c.* Prickles unequal, larger ones falcate. Leaflets ciliated with glands. Flowers drooping. Calyxes clammy. Fruit oblong. (*Don's Mill.*) A bushy shrub. Eastern Caucasus, in groves. Height 3 ft. to 6 ft. Introduced in 1596. Flowers white or red; single, but most commonly double; June and July. Fruit red; ripe in September.

*Varieties.* Above 100 varieties are assigned to this species, which are classed in three divisions: —

✻ R. *c.* 1 *provinciàlis* Mill.; *the Provence,* or Cabbage, *Roses;* among which are the royal and cabbage blush; the car-

582. *R* centifòlia.

mine; the cluster; the Duchesse d'Angoulême, a very handsome white rose; the Provence, of which there are upwards of twenty subvarieties; the prolific; the striped nosegay; and the Versailles.

R. *c.* 2 *muscòsa* Mill., *the Moss Roses;* among which are the common single (*fig.* 583.), the common double, the blush, the dark, the striped, the white, and the crested moss (*R.* c. *m.* cristàta), and many others.

583. *R.* c. cristàta.

R. *c.* 4 pompònia *Dec.*, *the Pompone Roses* N. Du Ham.; *R. pompònia* Redouté Ros. p. 65.; among which are the well-known rose de Meaux, an old inhabitant of the gardens; the mossy de Meaux, the dwarf, and small Provence; the rose de Rheims; and the common and proliferous pompone. These roses should be cut down every year, when they have done flowering, that they may send up new shoots every spring to produce flowers. If this be not done, the principal branches will dry up, and become bare like those of the bramble.

This species is distinguished from *R.* damascèna by the sepals not being reflexed, and the flowers having their petals curved inwards, so as, in the double state, to give the flower the appearance of the heart of a cabbage, whence the name of the cabbage rose. Its fruit is either oblong or roundish, but never elongated. From *R.* gállica it is distinguished by the flowers being drooping, and by the larger size of the prickles, with a more robust habit.

### 32. *R.* GA'LLICA *Lin.* The French Rose.

*Identification.* Lin. Sp., 704.; Dec. Prod., 2. p. 603.
*Synonymes.* *R.* centifòlia *Mill. Dict.* No. 41.; *R.* sylvática *Gater. Mont.* p. 94.; *R.* rùbra *Lam. Fl. Fr.* 3. p. 130.; *R.* holosericea *Rossig. Ros.* t. 18.; *R.* bélgica *Brot. Fl. Lus.* 1. p. 338.; *R.* blánda *Brot.* l. c.; Rose de Provins, *Fr.*; Essig Rose, *Ger.*
*Engravings.* Mill. Ic., t. 221. f. 2.; Red. Ros., 1. t. 25.; our *fig* 584. of the species; and *fig.* 855., which is of the variety called the Bishop Rose.

*Spec. Char., &c.* Prickles unequal. Stipules narrow, divaricate at the tip. Leaflets 5—7, coriaceous, rigid, ovate or lanceolate, deflexed. Flower bud ovate-globose. Sepals spreading during the time of the flowering. Fruit subglobose, very coriaceous. Calyx and peduncle more or less hispid with glanded hairs, somewhat viscose. A species allied to *R.* centifòlia *L.*, but with round fruit, and very coriaceous leaflets, with more numerous nerves, that are a little prominent, and are anastomosing. (*Dec. Prod.*) A bushy shrub. Middle of Europe and Caucasus, in hedges. Height 2 ft. to 3 ft. Introduced ?. Flowers red, crimson, or white, single or double; June and July. Fruit red; ripe in August.

584. *R.* gállica.

*Varieties.* The varieties of this species are very numerous; some of the principal are, the cramoisie, royal crimson, black damask, Fanny Bias, Flanders, giant, gloria mundi, grand monarque, the Dutch, the blush, the bishop (*fig.* 585.), and Singleton's, all old favourites in our gardens; Malta, marbled, several subvarieties; mignonne, six or eight sorts; Morocco, negro, mottled black, Ninon de l'Enclos, Normandy; officinal, or the rose of the shops, several varieties; purple, 14 sorts; poppy; velvet, several

585. *R.* gallica.

kinds; ranunculus, rosa mundi, sultana; Tuscany; the *Ròsa* g. parvifòlia, our *fig.* 586. The village maid, a striped rose, introduced by Mr. Rogers of Southampton, probably belongs to this species. Besides these, there are numerous distinct varieties, which will be found described in our first edition.

586. *R.* g. parvifòra.

The petals of some of the varieties of this rose are used in medicine, particularly of that called officinal; which, though not so fragrant as those of the Dutch hundred-leaved rose, another variety, are preferred for their beautiful colour and their pleasant astringency.

## § vi. *Villòsæ.*

*Derivation.* From *villosus*, villous; in allusion to the hairiness of the species.

*Sect. Char.* Surculi erect. Prickles straightish. Leaflets ovate or oblong, with diverging serratures. Sepals connivent, permanent. Disk thickened, closing the throat. — This division borders equally close upon those of Canìnæ and Rubiginòsæ. From both it is distinguished by its root-suckers being erect and stout. The most absolute marks of difference, however, between this and Canìnæ, exist in the prickles of the present section being straight, and the serratures of the leaves diverging. If, as is sometimes the case, the prickles of this tribe are falcate, the serratures become more diverging. The permanent sepals are another character by which this tribe may be known from Canìnæ. Rubiginòsæ cannot be confounded with the present section, on account of the unequal hooked prickles, and glandular leaves, of the species. Roughness of fruit and permanence of sepals are common to both. (*Don's Mill.*, ii. p. 576.) Deciduous shrubs, mostly with erectish branches. Natives of Middle Europe, or Britain.

### A. *Natives of Middle Europe, not of Britain.*

33. *R.* TURBINA'TA *Ait.* The turbinate-*calyxed*, *or Frankfort*, Rose.

*Identification.* Ait. Hort. Kew., ed. 1. vol. 2. p. 206.; Dec. Prod., 2. p. 603.; Don's Mill., 2. p. 576.
*Synonymes.* *R.* campanulàta *Ehrh. Beitr.* 6. p. 97.; *R.* francofortiàna *Munch. Hausv.* 5. p. 24.: *R.* francfurtènsis *Rossig. Ros.* t. 11.
*Engravings.* Jacq. Schönbr., 4. t. 415.; Lawr. Ros., t. 69.; and our *fig.* 587.

587. *R.* turbinàta.

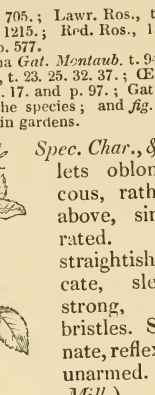
*Spec. Char., &c.* Stem nearly without prickles. Branches smooth. Leaflets 5—7, ovate-cordate, large, wrinkled in a bullate manner, serrate, approximate, a little villous beneath. Stipules large, clasping the stem or branch. Flowers disposed subcorymbosely, large, violaceous red. Peduncles wrinkled and hispid. Calyx turbinate, smoothish. Sepals undivided, subspathulate. (*Dec. Prod.*) An erectish shrub. Germany. Height 4 ft. to 6 ft. Introduced in 1629. Flowers large, red, and loose; June and July.

*Varieties.* R. *t.* 1 *francofurtàna* Ser., and R. *t.* 2 *orbessùna* Ser., are the commonest forms of this species.

### ♣ 34. *R.* A'LBA *Lin.* The *common* white Rose.

*Identification.* Lin. Sp., 705.; Lawr. Ros., t. 23. 25. 32. 37.; Œd. Fl. Dan., t. 1215.; Red. Ros., 1. p. 97. and p. 17.; Don's Mill., 2. p. 577.
*Synonyme.* *R.* usitatíssima *Gat. Montaub.* t. 94.
*Engravings.* Lawr. Ros., t. 23. 25. 32. 37.; Œd. Fl. Dan., t. 1215.: Red. Ros., 1. p. 17. and p. 97.; Gat. Montaub., t. 94.; our *fig.* 588. of the species; and *fig.* 589. of the double variety common in gardens.

588. *R.* álba.


589. *R.* álba.

*Spec. Char., &c.* Leaflets oblong, glaucous, rather naked above, simply serrated. Prickles straightish or falcate, slender or strong, without bristles. Sepals pinnate, reflexed. Fruit unarmed. (*Don's Mill.*) A large shrub. Piedmont, Denmark, France, and Saxony. Height 4 ft. to 10 ft. Introduced in 1597. Flowers large, either white, or of the most delicate blush colour, with a grateful fragrance; June and July. Fruit oblong, scarlet, or blood-coloured; ripe in September.

*Varieties.* The garden varieties are very numerous; and some of the most beautiful are the double, semidouble, and single blush; the celestial, a well-known favourite; the great, small, and cluster maiden's blush; the double thornless; and the double, semidouble, and single white. The rose blanche à cœur vert, the bouquet blanc, and the blanche de la Belgique. are well-known and beautiful varieties of this species.

## B. *Natives of Europe and Britain.*

### ♣ 35. *R.* VILLO'SA *Lin.* The villous-*leaved* Rose.

*Identification.* Lin. Sp., 704.; Don's Mill., 2. p. 576.
*Synonymes.* *R.* móllis *Smith* in *Eng. Bot.* t. 2459.; *R.* tomentòsa *β Lindl. Ros.* p. 77; *R.* heterophýlla *Woods* in *Lin. Trans.* 12. p. 195.; *R.* pulchélla *Woods* l. c. p. 196.; *R.* pomífera *Herm. Diss.* 16.
*Engravings.* Eng. Bot., t. 2459.; and our *fig.* 590.

590. *R.* villòsa.

*Spec. Char., &c.* Leaflets rounded, bluntish, downy all over. Fruit globose, rather depressed, partly bristly. Sepals slightly compound. Branches without bristles. (*Don's Mill.*) A rambling shrub. Europe, in hedges; in Britain, in bushy rather mountainous situations in Wales, Scotland, and the North of England. Height 5 ft. to 6 ft. Flowers red or pink; July. Fruit purple; ripe Sept.

*Varieties.* *R.* grácilis *Woods*, *R.* Sherárdi Davies, *R.* sylvéstris *Lindl.*, are described in our first edition.

A very variable plant. (See No. 29. p. 332.)

591. *R.* tomentòsa.

### ♣ 36. *R.* TOMENTO'SA *Smith.* The tomentose, *or woolly-leaved*, Rose.

*Identification.* Smith Fl. Brit., 539.; Eng. Bot., 990.; Don's Mill., 2. p. 576.
*Synonymes.* *R.* villòsa *Ehrh. Arb.* p. 45., *Du Roi Harbk.* 2. p. 341., *Fl. Dan.*, t. 1458., *R.* mollissima *Börk Holz.* p. 307.; *R.* dùbia *Wibel Wirth.* p. 263.; *R.* villòsa *β Huds.* 219.
*Engravings.* Red. Ros., 2. p 39. and p. 88.; Eng. Bot., t. 990., and our *fig.* 591.

*Spec. Char., &c.* Leaflets ovate, acute, more or less downy. Fruit elliptical, hispid. Sepals pinnate.

Prickles slightly curved. Petals white at the base. A rambling shrub. (*Don's Mill.*) Europe, in hedges and thickets; plentiful in Britain. Height 6 ft. Flowers pink; June and July. Fruit scarlet; ripe in September.

## § vii. *Rubiginòsæ* Lindl.

*Derivation.* From *rubiginosus*, rusty; the leaves of the species being usually furnished with rust-coloured glands beneath.

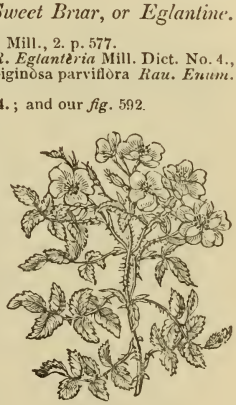
*Sect. Char., &c.* Prickles unequal, sometimes bristle-formed, rarely wanting. Leaflets ovate or oblong, glandular, with diverging serratures. Sepals permanent. Disk thickened. Root-shoots arched. The numerous glands on the lower surface of the leaves will be sufficient to prevent anything else being referred to this section; and although *R.* tomentòsa has sometimes glandular leaves, the inequality of the prickles of the species of Rubiginòsæ, and their red fruit, will clearly distinguish them. (*Don's Mill.*, ii. p. 577.) — This division includes all the eglantine, or sweet-briar roses, which are for the most part erect or erectish bushes with deciduous leaves. Natives of Britain, Middle Europe, and Caucasus.

### A. *Species Natives of Britain.*

37. *R.* RUBIGINO'SA *Lin.* The rusty-*leaved* Rose, *Sweet Briar, or Eglantine.*

*Identification.* Lin. Mant., 2. p. 594; Dec. Prod., 2. p. 604.; Don's Mill., 2. p. 577.
*Synonymes.* *R.* suavifòlia *Lightf. Scot.* 1. p. 261., *Fl. Dan.* t. 870.; *R. Eglantèria* Mill. Dict. No. 4., Lin. Sp. edit. 1. p. 491.; *R.* agréstis *Savi Fl. Pis.* p. 475.; *R.* rubiginòsa parviflòra *Rau. Enum.* 135.
*Engravings.* Eng. Bot., t. 991.; Lawr. Ros., t. 41. 61. 65. 72. and 74.; and our *fig.* 592.

*Spec. Char., &c.* Prickles hooked, compressed, with smaller straighter ones interspersed. Leaflets elliptical, doubly serrated, hairy, clothed beneath with rust-coloured glands. Sepals pinnate, and bristly, as well as the peduncles. Fruit obovate, bristly towards the base. (*Don's Mill.*) A rambling shrub. Europe, and Caucasus; in Britain, in bushy places, on a dry gravelly or chalky soil. Height 4 ft. to 6 ft. Flowers pink; June and July. Fruit scarlet, obovate or elliptic; ripe in September. Leaves sweet-scented when bruised.

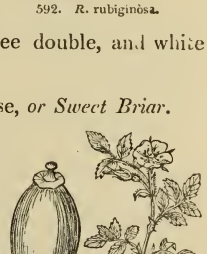

592. *R.* rubiginòsa.

*Varieties.* Eleven are described in our first edition. Some of the best for a rosarium are, the blush, cluster, double, dwarf, semidouble, mossy, scarle , tree double, and white semidouble.

38. *R.* MICRA'NTHA *Sm.* The small-flowered Rose, *or Sweet Briar.*

*Identification.* Smith in Eng. Bot., t. 2490.; Don's Mill., 2. p. 578.
*Synonyme.* *R.* rubiginòsa β micrántha *Lindl. Ros.* p. 87., with erroneous synonymes.
*Engravings.* Eng. Bot., t. 2490.; and our *figs.* 593, 594.

*Spec. Char., &c.* Prickles hooked, scattered, nearly uniform. Leaflets ovate, doubly serrated, hairy, glandular beneath. Sepals pinnate. Fruit elliptic, rather bristly, contracted at the summit. Stems straggling. (*Don's Mill.*) A bush with arched shoots, and straggling branches. Britain, in hedges and thickets, chiefly in the South of England. Height 5 ft. to 6 ft. Flowers small, pale red; June and July. Fruit coral red, ovate; ripe in September


593. 594 *R.* micrántha.

39. *R.* SE'PIUM *Thuil.* The Hedge Rose, *or Briar.*

*Identification.* Thuil. Fl. Par., 252.; Borr. in Eng. Bot. Suppl., t. 2653.; Don's Mill., 2. p. 578.
*Synonymes.* *R.* helvética and *R.* myrtifòlia *Hall*; *R.* canina β *Dec. Fl. Fr.* ed. 3. No. 3617.; *R.* agréstis *Savi Fl. Pis.* 1. p. 474.; *R.* biserràta, *R.* macrocárpa, and *R.* stipulàris *Mer. Fl. Par.* 190. ex *Desv.* f. 75.
*Engravings.* Eng. Bot. Suppl., t. 2653.; and our *fig.* 595.

*Spec. Char., &c.* Prickles slender. Branches flexuous. Leaflets shining, acute at both ends. Flowers usually solitary. Fruit polished. Sepals pinnate, with very narrow segments. (*Don's Mill.*) A densely branched bush. Europe, in hedges; in England, near Bridport, Warwickshire. Height 4 ft. to 6 ft. Flowers small, pale yellowish pink; June and July. Fruit small, oblong-ovate, scarlet; ripe in September.

595. *R* sèpium.

### 40. *R.* INODO'RA. The scentless Rose.

*Identification.* Eng. Bot. Suppl., 2610.; Hood ed. 2. 232.
*Synonymes.* *R.* dumetòrum *Eng. Bot.* 2579.; *R.* Bôrreri Smith Eng. Fl. 2398., Don's Mill. 2. p. 580.; *R.* rubiginòsa var. inodòra *Lindl. Ros. Monog.* 101.
*Engravings.* Eng. Bot. 2579.; and our *fig.* 596.

*Spec. Char., &c.* Prickles hooked. Leaflets ovate; doubly serrated, without glands. Sepals pinnate, often doubly pinnate, deciduous. Flower stalks aggregate, hairy. Fruit elliptical, smooth. (*Don's Mill.*) A stout bush. Britain. Not very unfrequent in hedges and thickets. Height 6 ft. to 7 ft. Flowers pink; June and July. Fruit elliptic, or nearly globose, scarlet.

596. *R.* inodòra.

The foliage has, notwithstanding the specific name, a scent more or less faint, according to the number of glands developed in different individuals; but it resembles rather the turpentine odour of the plants of the preceding section than the fragrance of the sweet briar.

## B. *Species Natives of Middle Europe.*

### 41. *R.* LU'TEA *Dodon.* The yellow *Eglantine* Rose.

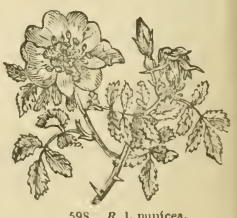
*Identification.* Dodon. Pempt., 187.; Mill. Dict., No. 11.; Don's Mill., 2. p. 577.
*Synonymes.* *R. Eglantèria* Lin. Sp. 703., Red. Ros. 1. p. 69.; *R.* fœ'tida *Herm. Diss.* 18.; *R.* chlorophylla *Ehrh. Beitr.* 2. p. 69.; *R.* cèrea *Rossig. Ros.* t. 2.
*Engravings.* Lawr. Ros., t. 12.; Bot. Mag., t. 363.; Red. Ros., 1. p. 69.; Rossig. Ros., t. 2.; and our *fig.* 597.

*Spec. Char., &c.* Prickles straight. Leaflets deep green. Sepals nearly entire, setigerous. Petals flat, concave. Flowers deep yellow, large, cup-shaped, solitary. Fruit unknown. A branchy shrub. Germany and the South of France. Height 3 ft. to 4 ft. Introduced in 1596. Flowers deep yellow; June.

597. *R.* lutea.

*Varieties.*

- R. *l.* 2 *subrùbra* Red. Ros. iii. p. 73., with a fig. — Peduncles rather hispid and glandular. Leaves and petioles glabrous. Stem prickly at the base. Prickles unequal, scattered. Petals of a lurid red above, and yellowish beneath. Stigmas yellow. (*Don's Mill.*)
- R. *l.* 3 *punícea* Lindl. Ros. p. 84.; *R.* punícea *Mill. Dict.* No. 12., *Rossig. Ros.* t. 5.; *R.* cinnamòmea *Roth Fl. Germ.* i. p. 217.; *R.* lùtea bícolor *Jacq. Vind.* i. t. 1., *Lawr. Ros.* t. 6., *Bot. Mag.* t. 1077.; *R. Eglantèria* punícea *Red. Ros.* i. p. 71. t. 24.; *R. Eglantèria* bícolor *Dec. Fl. Fr.* iv. p. 437.; and our *fig.* 598.; has the petals scarlet above, and yellow beneath.


598. *R.* l. punícea.

- R. *l.* 4 *flòre plèno.* Williams's *double yellow Sweet Briar.*—A very beautiful variety, and a free flowerer, raised from seeds by Mr. Williams of Pitmaston. Horticultural Society's Garden.
- R. *l.* 5. *Hóggii D. Don* in *Swt. Brit. Fl. Gard.* t. 410. *Hogg's yellow*

American *Rose*.—Pretty, and a free flowerer. Raised by Mr. Hogg, nurseryman, in New York, from seeds of the single yellow rose. Horticultural Society's Garden.

*Other Species belonging to this Section.*—*R.* ibérica *Smith*, native of Eastern Iberia; *R.* glutinòsa *Smith*, native of Greece; *R.* Klùkii Bess., native of Tauria; *R.* suavèolens *Pursh*, native of North America; and *R.* Montezùmæ Humb., native of Mexico, are described in our first edition.

## § viii. *Canìnæ* Lindl.

*Derivation.* From *caninus*, belonging to a dog; because *R.* canìna is commonly called the dog rose. The name is applied to this section, because all the species contained in it agree in character with *R.* canìna.

*Sect. Char., &c.* Prickles equal, hooked. Leaflets ovate, glandless or glandular, with the serratures conniving. Sepals deciduous. Disk thickened, closing the throat. Larger suckers arched. (*Don's Mill.*) Deciduous, but some sub-evergreen.—Chiefly bushes, but partly sarmentose and procumbent. Natives of Britain, Middle Europe, and Asia.

### A. *Species Natives of Britain.*

### ♣ 42. *R.* CANI`NA *Lin.* The *common* Dog Rose.

*Identification.* Lin. Sp., 704.; Don's Mill., 2. p. 579.
*Synonymes.* *R.* dumàlis *Bechst. Forstb.* 241. and 939. ex *Rau.*; *R.* andegavènsis *Bat. Fl. Main. et Loir.* 189., *Red. Ros.* 2. p. 9. t. 3.; *R.* glaùca *Lois.* in *Desv. Journ.*; *R.* arvénsis *Schrank Fl. Mon.*; *R.* glaucescens *Mer. Par.*; *R.* nìtens *Mer.* l. c.; *R.* teneriffénsis *Donn Hort. Cant.* ed. 8. p. 169.; *R.* senticòsa *Achar. Acad. Handl.* 34. p. 91. t. 3.
*Engravings.* Eng. Bot., t. 992.; Lawr. Ros., t. 21. 29.; and our *fig.* 599.

599. *R.* canina.

600. *R.* c. aciphýlla.

*Spec. Char., &c.* Prickles strong, hooked. Leaflets simply serrated, pointed, quite smooth. Sepals pinnate. Fruit ovate, smooth, or rather bristly, like the aggregate flower stalks. (*Don's Mill.*) A rambling shrub. Europe generally, and the North of Africa; plentiful in Britain, in hedges, woods, and thickets. Height 6 ft. to 10 ft. Flowers rather large, pale red, seldom white; June and July. Fruit scarlet; ripe in September.

*Variety.*

♣ R. *c.* 2 *aciphýlla* Lindl. Ros. p. 99.; *R.* aciphýlla *Rau.* 69. with a fig., *Red. Ros.* ii. p. 31. t. 13.; and our *figs.* 600, 601.; is a very remarkable variety, from the straightness of its shoots, and its singular habit of growth. The leaves are smooth on both surfaces, and the flowers are smaller than those of the species.

601. *R.* c. aciphýlla.

*Other Varieties.* Seventeen are described in our first edition.

Fruit ovate, bright scarlet, of a peculiar and very grateful flavour, especially if made into a conserve with sugar. The pulp of the fruit besides saccharine matter, contains citric acid, which gives it an acid taste. The pulp, before it is used, should be carefully cleared from the nuts or seeds. Numerous varieties.

### ♣ 43. *R.* FO`RSTERI Sm. Forster's *Dog* Rose.

*Identification.* Smith Eng. Fl., 2. p. 392.; Bor. in Eng. Bot. Suppl., 2611.; Don's Mill., 2. p. 580.
*Synonyme.* *R.* collìna β and γ *Woods* in *Lin. Trans.* 12. p. 392.
*Engravings.* Eng. Bot Suppl., t. 2611.; and our *fig.* 602.

602. *R.* Fórsteri.

*Spec. Char., &c.* Prickles scattered, conical, hooked.

Leaflets simply serrated, smooth above, but hairy on the ribs beneath. Sepals doubly pinnate. Fruit elliptical, smooth, like the aggregate flower stalks. (*Don's Mill.*) A large shrub. Native of Europe, in hedges; plentiful in England. Height 6 ft. to 8 ft. Flowers pale red; June and July. Fruit scarlet; ripe in September.

### 44. *R.* DUMETO'RUM *Thuill.* The Thicket *Dog* Rose.

*Identification.* Thuil. Fl. Par., 250.; Bor. in Eng. Bot. Suppl., t. 2610.; Don's Mill., 2. p. 580.
*Synonymes.* *R.* leucántha β acutifòlia *Bast.* in *Dec. Fl. Fr.* 5. p. 535.; *R.* sèpium *Borkh.* ex *Rau. Enum.* 79.; *R.* solstitiàlis *Bess. Prim. Fl. Gall.* 324.; *R.* corymbifera *Gmel. Fl. Bad. Als.* 2. p. 427.
*Engravings.* Eng. Bot. Suppl., t. 2610.; and our *fig.* 603.

603. *R.* dumetòrum.

*Spec. Char., &c.* Prickles numerous, scattered, hooked. Leaflets simply serrated, hairy on both surfaces. Sepals pinnate, deciduous. Peduncles aggregate, slightly hairy Fruit elliptical, smooth, as long as the bracteas. (*Don's Mill.*) A large shrub. Europe, in hedges; and found in England, in the southern counties, but seldom in any abundance. Height 4 ft. to 6 ft. Flowers reddish; June and July. Fruit scarlet; ripe in September.

### 45. *R.* SARMENTA'CEA *Swartz.* The sarmentaceous *Dog* Rose.

*Identification.* Swartz MSS.; Woods in Lin. Trans., 12. p. 213.; Don's Mill., 2. p. 580.
*Synonymes.* *R.* glaucophýlla *Winch Geogr Distrib.* 45.; *R.* canìna *Roth Fl. Germ.* 2. p. 560.
*Engravings.* Curt. Lond., fasc. 5. t. 34.; and our *fig.* 604.

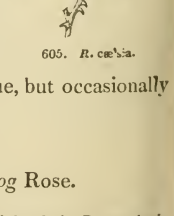
604. *R.* sarmentàcea.

*Spec. Char., &c.* Prickles hooked. Leaflets ovate, doubly serrated, smooth, glandular. Peduncles aggregate, smooth or minutely bristly. Sepals pinnate, deciduous. Fruit broadly elliptic, naked. (*Don's Mill.*) A rambling shrub. Europe, common in hedges and bushy places; plentiful in Britain. Height 8 ft. to 10 ft. Flowers pink, and fragrant; June and July. Fruit scarlet; ripe in September.

The fruit is as grateful to the palate, probably, as that of *R.* canìna, with which this equally common plant is generally confounded. This is the species most commonly made choice of as a stock for garden roses.

### 46. *R.* CÆ'SIA *Sm.* The grey *Dog* Rose.

*Identification.* Smith Eng. Bot., t. 2367.; Don's Mill., 2. p. 580.
*Synonymes.* *R.* canìna pubéscens *Afz. Ros. Suec. Tent.* 1. p. 2.; *R.* canìna ζ cæ'sia *Lindl. Ros* p. 99.
*Engravings.* Eng. Bot., t. 2367.; and our *fig.* 605


605. *R.* cæ'sia.

*Spec. Char., &c.* Prickles hooked, uniform. Leaflets elliptical, somewhat doubly serrated, glaucous, hairy beneath, without glands. Sepals distantly pinnate, deciduous. Flower stalks smooth, solitary. Fruit elliptical, smooth. (*Don's Mill.*) A rambling shrub. Scotland, in the Highland valleys, but rare; at Taymilt, in Mid-Lorn, Argyleshire; and in Strath Tay, between Dunkeld and Aberfeldie, and by the side of Loch Tay. Height 4 ft. to 5 ft. Flowers generally of a uniform carnation hue, but occasionally white; July. Fruit scarlet; ripe in September.

## B. *Species Natives of Middle Europe.*

### 47. *R.* RUBRIFO'LIA *Vill.* The red-leaved *Dog* Rose.

*Identification.* Vill. Dauph., 3. p. 549.; Don's Mill., 2. p. 581.
*Synonymes.* *R.* multifòra *Reyn. Act. Laus.* 1. p. 70. t. 6.; *R.* rubicúnda *Hall. fil.* in *Roem. Arch.* 3. p. 376.; *R.* lùrida *Andr. Ros.*; *R.* cinnamòmea γ rubrifòlia *Red. Ros.* 1. p. 134.
*Engravings.* Bell. in Act. Taur., 1790, p. 229. t. 9.; Jacq. Fragm., 70. t. 106.; Red. Ros., 1 p. 3[illegible]. 4.; Lindl. in Bot. Reg., t. 430.; and our *fig.* 606.

*Spec. Char., &c.* Prickles small, distant. Leaflets ovate, and, as well as the branches, glabrous, opaque, discoloured. Sepals narrow, entire. Fruit ovate, globose, smooth. Flowers corymbose. Peduncles smooth. (*Don's Mill.*) A large shrub. Dauphiné, Austria, Savoy, Pyrenees, and Auvergne, in woods. Height 5 ft to 6 ft. Flowers red; June and July. Fruit scarlet; ripe in September.

Stems red. Leaves red at the edges. Flowers small. Sepals narrow, longer than the petals. A shrub, producing a pleasing effect in a shrubbery, from the pinkness of its foliage. At the funeral of Villars, who first named and described this rose, branches and flowers of it were cut and strewed over his grave. There are several varieties described in our first edition.

606. *R.* rubrifòlia.

## C. *Species Natives of Asia.*

### ✠ 48. *R.* CAUCA'SEA *Pall.* The Caucasian *Dog* Rose.

*Identification.* Pall. Ross., t. 11.; Lindl. Ros., p. 97.; Don's Mill., 2. p. 579.
*Synonyme.* *R.* leucántha *Bieb. Fl. Taur. Suppl.* 351. ?
*Engravings.* Lind. Ros., t. 11.; and our *fig.* 607.

*Spec. Char., &c.* Prickles strong, recurved. Leaflets soft, ovate, glaucous. Calyx and peduncles hispid. Sepals simple. Fruit smooth. Flowers large, growing in bunches. (*Don's Mill.*) A robust shrub. Siberia. Height 10 ft. to 12 ft. Introduced in 1798. Flowers white or pale red; June and July. Fruit red; ripe in September.

607. *R.* caucàsea. 608. *R.* índica. 609. *R.* índica Noisettiàna

### ✠ 49. *R.* I'NDICA *L.* The Indian, *or common China*, Rose.

*Identification.* Lin. Sp., 705.; Don's Mill., 2. p. 581.
*Synonymes.* *R.* sínica *Lin. Syst. Veg.* ed. 13. p. 398.; *R.* semperflòrens cárnea *Rossig. Ros.* t. 19.; *R.* índica chinénsis semiplèna *Ser. Mel.* 1. p. 31.; *R.* reclinàta flòre submultiplici *Red. Ros.* p. 79.; the monthly Rose, the blush China Rose, the Tea-scented Rose; Rosier Indien, Rose Thé, *Fr.*; Indische Rose, *Ger.*
*Engravings.* Lawr. Ros., t. 26.; Red. Ros., 1. p. 51. t. 142., p. 35. t. 15.; and our *fig.* 608. above.

*Spec. Char., &c.* Stem upright, whitish, or green, or purple. Prickles stout, falcate, distant. Leaflets 3—5; ovate-acuminate, coriaceous, shining, glabrous, serrulate; the surfaces of different colours. Stipules very narrow, connate with the petiole, almost entire or serrate. Flowers solitary, or in panicles. Stamens bent inwards. Peduncle sub-articulate, mostly thickened upwards, and with the calyx smooth, or wrinkled and bristly. (*Dec. Prod.*) Sub-evergreen. China, near Canton. Height 4 ft. to 20 ft. Introd. in 1789

Flowers red, usually semidouble; April to November. Fruit red; ripe in September.

One of the most valuable of garden roses.

*Varieties.* There are numerous varieties and hybrids of this beautiful rose. The following are quite distinct; and may each be considered the type of a long list of subvarieties: —

- R. *i.* 2 *Noisettiàna Ser.* in *Dec. Prod.* ii. p. 600., *Don's Mill.* ii. p. 581.; *fig.* 609. above. — Stem firm, and, as well as the branches, prickly. Stipules nearly entire. Flowers panicled, very numerous, semidouble, pale red. Styles exserted. Raised in North America, from an accidental cross between *R.* índica and *R.* moschàta, and the plants being sold to Philip Noisette, his name was given to this variety. It was first brought to England by Mr. Fraser. This well-known and very beautiful rose is almost invaluable in a shrubbery, from its free and vigorous growth, and the profusion of its flowers, which are continually being produced during the whole summer. Numerous subvarieties have been raised of the Noisette rose, some of the most distinct of which are, the R. *i. N. purpùrea* of Redouté, which has red flowers; R. *i. N. nívea*, the Aimé Vibert of the French nurseries, which has double white flowers; R. *i. N.* Smíthii, Smith's yellow Noisette rose, the flowers of which are very double, of a deeper yellow than the double yellow China rose (*R.* i. ochroleùca), and disposed in clustered corymbs of from 10 to 22, and are highly fragrant.

610. *R.* i. odoratíssima.

- R. *i.* 3 *odoratíssima* Lindl. Ros. p. 106., Bot. Reg. t. 864., Don's Mill. ii. p. 582.; *R.* odoratíssima *Swt. Hort. Sub. Lond.*; *R.* índica fràgrans *Red. Ros.* i. p. 6. t. 19.; and our *fig.* 610.; the sweetest, or tea-scented, China Rose; Rose à Odeur de Thé, *Fr.*; has semidouble flowers, of a most delicious fragrance, strongly resembling the scent of the finest green tea. There are numerous subvarieties.

611. *R.* i. longifòlia.

- R. *i.* 4 *longifòlia* Lindl. Ros. p. 106.; *R.* longifòlia *Willd. Enum.* ii. 1079., *Red Ros.* ii. t. 27.; *R.* semperflòrens var. 7. *N. Du Ham.* vii. p. 22.; *R.* salicifòlia *Hort.*; and our *fig.* 611.; has the stems nearly unarmed, and long lanceolate leaflets.
- R. *i.* 5 *pùmila* Lindl. Ros. p. 106. is a dwarf variety, with purplish flowers, having ovate petals.
- R. *i.* 6 *caryophýllea* Red. Ros. iii. p. 59. has the flowers in a kind of panicle, and the leaflets large and thin.
- R. *i.* 7 *pannòsa* Red. has the stems and branches prickly; the leaflets ovate, and red beneath, with the stipules so finely denticulated as to give them somewhat of a fringed or pannose appearance. Flowers drooping a little, purple on the outside, and with the inner petals rose-coloured.
- R. *i.* 8 *cruénta* Red., and Don's Mill. ii. p. 582.; differing from the above principally in having the stems and branches almost unarmed, and the stipules almost entire.
- R. *i.* 9 *Fraseriàna Hort. Brit.* p. 211., and *Don's Mill.* ii. p. 582. — A hybrid, with double pink flowers.

R. *i.* 10 *rùga* Lindl. Bot. Reg. t. 1389., and our *fig.* 612., has double, blush changging to white, sweet-scented flowers. It is a hybrid between *R.* i. odoratíssima and *R.* arvénsis, brought from Italy, where it was raised by Mr. Clare. It grows freely, making shoots 10 or 12 feet long in a season.

612. *R.* i. rùga.

R. *i.* 11 *ochroleùca* Bot. Reg. has large cream-coloured flowers, deepening almost into yellow in the centre. It was introduced by Mr. Parks in 1824, and appears to have been since lost.

R. *i.* 12 *flavéscens.* — This, Mr. Gordon assures us, is the true tea-scented yellow China Rose, and not the preceding variety, which is generally considered as such, and confounded with it.

R. *i.* 13 *Blairii D. Don* in *Swt. Brit. Fl. Gard.* t. 405., and our *fig.* 613. —Raised in 1830, by Mr. Blair, from seeds of the yellow China rose, which had been fecundated by the pollen of the Tuscan rose. A robust plant, remarkable for the size of its leaves and flowers. Petals purple, but yellow at the base, especially towards the centre of the flower. Fragrant, and a free flowerer.

613. *R.* i. Blairii.

50. *R.* SEMPERFLO'RENS *Curt.* The everflowering *China* Rose.

*Identification.* Curt. Bot. Mag., t. 284.; Smith Exot. Bot., 2. p. 91.; Don's Mill., 2. p. 582.
*Synonymes.* *R.* diversifolia *Vent. Cels.* t. 35.; *R.* bengalénsis *Pers. Ench.* 2. p. 50.; *R.* indica *Red. Ros.* 1. p. 49. t. 13.
*Engravings.* Law. Ros., t. 23.; N. Du Ham., vii. t. 18.; and our *fig.* 614. of a double French variety.

614. *R.* semperflòrens.

*Spec. Char., &c.* Branches dark green, armed with scattered, compressed, hooked prickles, and a very few glands. An erectish sub-evergreen shrub. Leaflets 3—5, ovate-lanceolate, crenate-serrated, shining above, but glaucous and slightly setigerous beneath. Sepals compound, narrow. Fruit spherical. (*Don's Mill.*) China. Height 8 ft. to 10 ft. Introduced in 1789. Flowers solitary, single, or semidouble, deep crimson; April to November. Fruit red; ripe September.

There are some very splendid varieties of this species, with semidouble crimson flowers. They are all free growers, and abundant flowerers; and few plants are more ornamental against the walls of a cottage.

51. *R.* LAWRENCE*A'NA* Swt. *Miss* Lawrence's *China* Rose.

*Identification.* Sweet Hort. Suburb.; Lindl. Ros., p. 110.; Don's Mill., 2. p. 582.
*Synonymes.* *R.* semperflòrens minima *Sims Bot. Mag.* t. 1762.; *R.* indica var. α acuminàta *Red. Ros.* 1. p. 53.; *R.* indica Lawrence*ana* Red. Ros. 2. p. 38.
*Engravings.* Red. Ros., 1. p. 53.; and our *fig.* 615.

615. *R.* Lawrenceàna.

*Spec. Char., &c.* Dwarf. Prickles large, stout, nearly straight. Leaflets ovate acute, finely serrated. Petals acuminated. (*Don's Mill.*) A low shrub. China. Height

1 ft. Introduced in 1810. Flowers small, single or semidouble, pale blush ; April to November.

The beautiful little plants called Fairy Roses, or Miniature Roses, in Rivers's *Abridged List*, are nearly all varieties of *R.* Lawrenceàna ; and they are well worthy of culture, from their extreme dwarfness (often flowering when not more than 6 in. high), and the beautiful colour of their miniature rosebuds, the petals of which appear of a much darker hue than those of the expanded flower. Rivers enumerates five select varieties, of which he says the Gloire des Lawrencianas is one of the prettiest.

616. *R.* sericea.

♃ 52. *R.* SERI'CEA *Lindl.* The silky Rose.

*Identification.* Lindl. Ros. Monog., p. 105. ; Don's Mill., 2. p. 581.
*Engravings.* Lindl. Ros. Monog., t. 12. ; and our *fig.* 616.

*Spec. Char., &c.* Prickles stipular, compressed. Leaflets 7—11, oblong, obtuse, serrated at the apex, silky beneath. Flowers solitary, bractless. Sepals entire, ending in long points. (*Don's Mill.*) A shrub. Gossainthan. Height 4 ft. to 6 ft. Flowers ? pale red. Fruit in peduncles, naked.

## § ix. *Sýstylæ* Lindl.

*Derivation.* From *sun*, together, and *stulos*, a stile ; in reference to the styles being connected.

*Sect. Char.* Styles cohering together into an elongated column. Stipules adnate. The habit of this section is nearly the same as that of the last division. The leaves are frequently permanent. (*Don's Mill.*) Deciduous, evergreen, or sub-evergreen, and mostly climbing. Natives of Britain, Middle Europe, Asia, Africa, and North America.

### A. *Species Natives of Britain, and other Parts of Europe.*

♃ ✶ 53. *R.* SY'STYLA *Bat.* The connate-styled Rose.

*Identification.* Bat. Fl. Main. et Loir. Suppl., 31. ; Don's Mill. 2. p. 582.
*Synonymes.* *R.* collìna *Smith* in *Eng. Bot.* t. 1895. ; *R.* stylòsa *Desv. Journ. Bot.* 2. p. 317. ; *R.* brevìstyla *Dec. Fl. Fr. Suppl.* p. 537. ; *R.* bibracteàta *Dec.* l. c. ; *R.* sýstyla α ovàta *Lindl Ros.* p. 111.
*Engravings.* Eng. Bot., t. 1895. ; and our *fig.* 617.

*Spec. Char., &c.* Shoots assurgent. Prickles strong, hooked. Peduncles glandular. Sepals pinnate, deciduous, Styles smooth. Floral receptacle conical. (*Don's Mill.*) A rambling shrub. France and England, in hedges and thickets ; common in Sussex ; in the South of Scotland, on hills. Height 6 ft. to 12 ft. Flowers fragrant, pink or almost white ; May to July. Fruit scarlet, ovate oblong.

617. *R.* systy a.

There are several varieties, but they do not differ materially in appearance from the species.

♃ ✶ 54. *R.* ARVE'NSIS *Huds.* The Field Rose.

*Identification.* Huds. Fl. Angl., ed. 1. p. 192. ; Dec. Prod., 2. p. 596.
*Synonymes.* *R.* sylvéstris *Hem. Diss.* p. 10. ; *R.* scándens *Mœnch Weiss. Pl.* p. 118. ; *R.* herpérhodon *Ehrh. Beitr.* 2. p. 69. ; *R.* Hállerí Krok. Siles. 2. p. 150. ; *R.* fúsca *Mœnch Meth.* p. 688. ; *R.* sérpens *Ehrh. Arbor.* p. 35. ; *R.* sempervìrens *Rossig. Ros.* ; *R.* rèpens *Gmel. Fl. Bad. Als.* 2. p. 418., *Jacq. Fragm.* p. 69. t. 104. ; *R.* rámpans *Reyn. Mém. Laus.* 1. p. 69. t. 5.
*Engravings.* Eng. Bot., t. 188. ; Bot. Mag., t. 2054. ; and our *fig.* 618.

*Spec. Char., &c.* Shoots cord-like. Prickles unequal and falcate. Leaves deciduous, and composed of 5—7 glabrous, or indistinctly ciliated, leaflets, glaucescent beneath. Stipules diverging at the tip. Flowers solitary or globose.

Sepals almost entire, short. Styles cohering into an elongated glabrous column. Fruit ovate, or ovate-globose, coriaceous, crimson, glabrous, or a little hispid, as well as the peduncles. (*Dec. Prod.*) Trailing, or climbing, deciduous; in some situations sub-evergreen. Europe, in many places; in England, in hedges and thickets and the borders of fields, chiefly in the midland counties. Stems 20 ft. to 40 ft. Flowers white; July. Fruit dark blood-coloured; ripe in September.

618. *R.* arvénsis.

*Varieties.* Several varieties are enumerated in catalogues; the following appear distinct, and of general interest: —

R. *a.* 2 *ayreshírea* Ser. *R.* capreolàta *Neill* in *Edin. Phil. Journ.* No. 3. p. 102. — Sub-evergreen. Prickles slender, very acute. Leaflets ovate, sharply serrated, thin, nearly of the same colour on both surfaces. Peduncles hispid with glanded hairs, or wrinkled. A vigorous-growing climber, producing shoots sometimes 20 ft. in length in one season, and flowering profusely from the middle of May to the middle of September. One of the hardiest of climbing roses, and particularly useful for covering naked walls, or unsightly roofs. Cultivated in British gardens under the name of the Ayrshire Rose.

R. *a.* 3 *hýbrida* Lindl. Ros. 113. has semidouble flowers, of a most delicate flesh colour, and is called, in the nurseries, the double hip rose; the term hip rose being applied by gardeners to the commonest wild roses.

In open situations, a trailing plant, sometimes rooting at the joints; but, in hedges and among bushes, a climber by elongation; reaching to their tops, and covering them with tufts of foliage and flowers; the leaves remaining on late in the season; and the fruit often remaining on all the winter. The shoots are, in general, feeble, much divided, and entangled; and they generally produce, here and there, rugged excrescences, which readily take root.

## B. *Species Natives of Middle Europe.*

55. *R.* (A.) SEMPERVI'RENS *Lin.* The evergreen (Field) Rose.

*Identification.* Lin. Sp, 704.; Dec. Prod., 2. p. 597.; Don's Mill., 2. p. 583.
*Synonymes.* *R.* scándens *Mill. Dict.* No. 8.; *R.* baleárica *Desf. Cat. Pers. Ench.* 2. p. 49.; *R.* atrovírens *Viv. Fl. Ital.* 4. t. 6.; *R.* sempervírens globòsa *Red. Ros.* 2., with a fig.; *R.* sempervírens var. α scándens *Dec. Fl. Fr.* 5. p. 533.
*Engravings.* Lawr. Ros., t. 45.; Bot. Reg., t. 459.; and our *fig.* 619.

*Spec. Char., &c.* Evergreen. Shoots climbing. Prickles pretty equal, falcate. Leaves of 5—7 leaflets, that are green on both sides, coriaceous. Flowers almost solitary, or in corymbs. Sepals nearly entire, longish. Styles cohering into an elongate pilose column. Fruit ovate or ovate globose, orange-coloured. Peduncles mostly hispid with glanded hairs. Closely allied to *R.* arvénsis, but differing in its being evergreen, in its leaves being coriaceous; and in its stipules being subfalcate, and more acute at the tip. (*Dec. Prod.*) A vigorous evergreen climber. France, Portugal, Italy, at Pæstum and other places, Greece, and the Balearic Islands. Stem 20 ft. to 40 ft. Introduced in 1629. Flowers white or pale rose-coloured; June to August. Fruit orange-coloured; ripe in September.

619. *R.* sempervírens.

*Varieties.* Several varieties are enumerated in catalogues; those which we consider best worth mentioning are, —

♃ ✱ R. (*a.*) *s.* 2 *Russell*iàna, raised from seed by Mr. Sinclair of the New Cross Nursery. A very strong-growing variety, quite deciduous, with blush flowers.

♃ ✱ R. (*a.*) *s.* 3 *Clàre*i. *The Rose Clare.* (Bot. Reg., t. 1438.)—An elegant variety, with deep red flowers. Both these varieties are as much entitled to be considered species, as many so designated in this enumeration.

Used for the same purposes as the Ayrshire rose; from which it differs in retaining its leaves the greater part of the winter, and in its less vigorous shoots.

C. *Species Natives of Asia, and One of them of Africa.*

♃ 56. *R.* MULTIFLO'RA *Thunb.* The many-flowered Rose.

*Identification.* Thunb. Fl. Jap., 214.; Dec. Prod., 2. p. 598.; Don's Mill., 2. p. 583.
*Synonymes.* *R.* flàva *Donn Hort. Cant.* ed. 4. p. 121.; *R.* flórida *Poir. Suppl.*; *R.* diffùsa *Roxb.*
*Engravings.* Bot. Mag., t. 1059.; Bot. Reg., t. 425.; and our *fig.* 620.

*Spec. Char., &c.* Branches, peduncles, and calyxes tomentose. Shoots very long. Prickles slender, scattered. Leaflets 5—7, ovate-lanceolate, soft, finely wrinkled. Stipules pectinate. Flowers in corymbs, and, in many instances, very numerous. Buds ovate globose. Sepals short. Styles protruded, incompletely grown together into a long hairy column. (*Dec. Prod.*) A deciduous climbing shrub. Japan and China. Stems 10 ft. to 30 ft. Introduced in 1822. Produces a profusion of clustered heads of single, semi-double, or double, white, pale red, or red, flowers in June and July. Fruit bright red; ripe in September.

620. *R.* multiflòra.

*Varieties.*

♃ R. *m.* 2 *Grevíllei Hort.* *R.* Ŕoxbúrghii Hort.; *R.* platyphýlla *Red. Ros.* p. 69.; The Seven Sisters Rose. (Our *fig.* 621.)—A beautiful variety, with much larger and more double flowers,

621. *R.* multiflòra Grevillei.

of a purplish colour. No climbing rose better deserves cultivation

against a wall. It is easily known from *R.* multiflòra by the fringed edge of the stipules; while those of the common *R.* multiflòra (*fig.* 621. *a*) have much less fringe, and the leaves are smaller, with the leaflets much less rugose. The form of the blossoms and corymbs is pretty nearly the same in both. A rapid-growing variety, producing shoots 18 ft. to 20 ft. long in a season, flowering profusely for two or three months, but only of three or four years duration.

♃ R. *m.* 3 *Boursaúlti Hort., Boursault's Rose*, is placed, in Don's *Miller*, under this species; though it differs more from the preceding variety than many species do from each other. It is comparatively a hard-wooded durable rose, and valuable for flowering early and freely This is a very remarkable rose, from its petals having a reticulated appearance.

The species is very distinct, and produces numerous blossoms, which continue expanding for two months. The first variety, when well grown against a wall, forms one of the most beautiful of wall roses. This variety and the species may be considered as rather tender, but they will not thrive under glass.

### ♃ ✱ 57. *R.* BRUNO'*NII* Lindl. Brown's Rose.

*Identification.* Lindl. Ros. Monog. p. 120. t. 14.; Dec. Prod., 2 p. 598.
*Synonyme.* *R.* Brównii Spreng. Syst., 2. p. 556.
*Engravings.* Lindl. Rosar. Monog., t. 14.; and our *fig.* 622.

622. *R.* Brunònii.

*Spec. Char., &c.* Shoots trailing. Prickles of the stem stout and arched. Leaflets 5—7, lanceolate, pilose on both surfaces; the under one glandulous, and of a different colour from the upper one. Stipules narrow, acute. Inflorescence corymbose. Peduncles and calyxes pilose, and a little hispid. Sepals entire, narrow, and longish. Styles cohering into a very long pilose column. Fruit ovate. Leaves simply serrated. Flowers in terminal bunches. (*Dec. Prod.*) A rambling shrub. Nepal. Stems 10 ft. to 12 ft. Introduced in 1822. Flowers white or pale red; June and July.

### ♃ ✱ 58. *R.* MOSCHA'TA *Mill.* The Musk Rose.

*Identification.* Mill. Dict., No. 13.; Red. et Thor. Ros., 1. p. 33. ic., and p. 99. ic.; Lindl. Rosar. Monog. p. 121.; Dec. Prod., 2. p. 598.; Don's Mill., 2. p. 583.
*Synonymes.* *R.* opsostêmma *Ehrh. Beitr.* 2. p. 72.; *R.* glandulifera *Roxb.*
*Engravings.* Red. et Thor. Ros., 1. p. 33. ic., and p. 99. ic.; and our *fig.* 623.

623. *R.* moschàta.

*Spec. Char., &c.* Shoots ascending. Prickles upon the stem slender, recurved. Leaflets 5—7, lanceolate, acuminate, nearly glabrous, the two surfaces of different colours. Stipules very narrow, acute. Flowers, in many instances, very numerous; white, with the claws of the petals yellow; very fragrant. Lateral peduncles jointed, and, as well as the calyx, pilose, and almost hispid. Sepals almost pinnately cut, long. Fruit red, ? ovate. (*Dec.*) A rambling shrub. North of Africa, extending across the continent from Egypt to Mogador; and in Madeira. Stems 10 ft. to 12 ft. Introduced in 1596. Flowers white; July to October.

*Varieties*

♃ ✱ R. *m.* 2 *flòre plèno* G. Don.—Flowers double.

R. *m.* 3 *nivea* Lindl. (Bot. Reg., t. 861.; and our *fig.* 624.) *R.* nivea *Dupont*, not of Dec.; *R.* m. ? var. *rosea Ser.* in *Dec. Prod.* — Leaflets 3—5, ovate-cordate, subacuminate, large. Flowers disposed in an imperfectly corymbose manner. Peduncle and calyx a little hispid. Petals white, or pale rose-coloured, large, obcordate. This is a very beautiful variety: the petals are white, with a most delicate, yet rich, tinge of blush.

624. *R.* m. nivea.

R. *m.* 4 *nepaléusis* Lindl. (Bot. Reg., t. 829.; and our *fig.* 625.) differs from the species in having longer and acuminated sepals. Raised at Claremont, from Nepal seed, in 1824

625. *R.* m. nepaléusis.

*Other Varieties.* In Rivers's *Abridged List of Roses*, published in 1840, the kinds recommended are, the Fringed, Princesse de Nassau, and Tea-scented; the latter a hybrid, with large flowers of a pure white, with a peculiar habit and perfume.

The branches of the musk rose are generally too weak to support, without props, its large bunches of flowers, which are produced in an umbel-like manner at their extremities; and hence the plants require very little pruning. Being rather tender, it does best against a wall. The musky odour is very perceptible, even at some distance from the plant, particularly in the evening; and this musk gives the peculiar odour to the Persian attar of roses.

## D. *Species Natives of North America.*

### 59. *R.* RUBIFO'LIA *R. Br.* The Bramble-leaved Rose.

*Identification.* R. Brown in Ait. Hort. Kew., ed. 2. vol. 3. p. 260.; Lindl. Rosar. Monog., p. 123. ic.; Dec. Prod., 2. p. 598.
*Engravings.* Lindl. Rosar. Monog., t. 15.; and our *fig.* 626.

*Spec. Char., &c.* Stems ascending. Branches glabrous. Prickles scattered, falcate. Leaves pubescent beneath. Leaflets 3, ovate-lanceolate, serrate. Stipules narrow, entire. Flowers very small, of a rosy colour, mostly solitary. Buds ovate. Sepals ovate, short, simple. Peduncles and calyxes a little hispid. Styles cohering into a tomentose club-shaped column, as long as the stamens. Fruit pea-shaped. (*Dec.*) A shrub. North America. Height 3 ft. to 4 ft. Introduced in 1830. Flowers pale red; August and September. Fruit scarlet; ripe in October.

626. *R.* rubifolia.

## § x. *Banksiànæ Lindl.*

*Identification.* Lindl. Ros.. p. 125.; Don's Mill., 2. p. 584
*Derivation.* So called in consequence of all the species contained in this section agreeing in character with *R.* Bánks*iæ*, a rose named in honour of Lady Banks.

*Sect. Char., &c.* Stipules nearly free, subulate, or very narrow, usually deciduous. Leaflets usually ternate, shining. Stems climbing. The species of

this section are remarkable for their long, graceful, and often climbing shoots, drooping flowers, and trifoliolate shining leaves. They are particularly distinguished by their deciduous, subulate, or very narrow stipules. Their fruit is very variable. (*Don's Mill.*) — Rambling shrubs, deciduous, or sub evergreen; somewhat tender in British gardens, where they only succeed when planted against a wall. Natives of China.

♃ 60. *R.* SI'NICA *Ait.* The *trifoliate-leaved* China Rose.

627. *R.* sínica

*Identification.* Ait. Hort. Kew., ed. 2. vol. 3 p. 261.; Lindl. Ros., p. 126. t. 16.; Don's Mill., 2. p. 584.
*Synonymes.* *R.* trifolìàta *Bosc Dict.* ex *Poir.*; *R.* ternâta *Poir. Suppl.* 6. p. 284.; *R.* cherokeénsis *Donn Hort. Cant.* ed. 8. p. 170.; *R.* nívea *Dec. Hort. Monsp.* 137., *Red. Ros.* 2. p. 81. with a fig.; *R.* hýstrix *Lindl. Monog.*; *R.* lævigàta *Michx.*
*Engravings.* Lindl. Ros., t. 16.; Hook. Bot. Mag., 2847.; Bot. Reg., 1922.; our *fig.* 627. after Redouté; and *fig.* 628. after Bot. Reg.

628. *R.* sinica

*Spec. Char., &c.* Stipules setaceous, deciduous. Cauline prickles equal, falcate. Petioles and ribs of leaves prickly. Peduncles and fruit beset with straight bristles. Sepals entire, permanent. Flowers white, solitary. Fruit elliptic, orange-red. Disk conical. (*Don's Mill.*) A rambling sub-evergreen shrub. China. Height 6 ft. to 8 ft. Introduced in 1759. Flowers white; May and June. Fruit orange red; ripe in September.

♃ 61. *R.* BA'NKSIÆ R. Br. *Lady* Banks's Rose.

*Identification.* R. Br. in Ait. Hort. Kew., ed. 2. vol. 3. p. 256.; Lindl. Rosar. Monog., p. 131.; Dec. Prod., 2. p. 601.
*Synonymes.* *R.* Banksiàna Abel Chin. 160.,; *R.* inérmis *Roxb.* ?
*Engravings.* Bot. Mag., t. 1954.; Red. et Thor. Ros., 2. p. 43. ic.; and our *fig.* 629.

*Spec. Char., &c.* Without prickles, glabrous, smooth. Leaflets 3—5, lanceolate, sparingly serrated, approximate. Stipules bristle-like, scarcely attached to the petiole, rather glossy, deciduous. Flowers in umbel-like corymbs, numerous, very double, sweet-scented, nodding. Tube of the calyx a little dilated at the tip. Fruit globose, black. (*Dec. Prod.*) A climbing deciduous shrub. China. Stems 10 ft. to 30 ft. Introduced in 1807. Flowers white; June and July. Fruit black.

629. *R.* Bánksiæ.

*Variety.*

♃ R. *B.* 2 *lùtea* Lindl. (Bot. Reg., t. 1105., and our *fig.* 630.) has the flowers of a pale buff colour, and is a very beautiful variety.

630. *R.* Bánksiæ lùtea.

This is an exceedingly beautiful and very remarkable kind of rose; the flowers being small, round, and very double, on long peduncles, and resembling in form the flowers of the double French cherry, or that of a small ranunculus, more than those of the generality of roses. The flowers of *R.* Bánksiæ álba are remarkably fragrant; the scent strongly resembling that of violets. Plants of neither variety thrive in the atmosphere of the metropolis.

Some which had attained a large size at Kew, and other places in the neighbourhood of London, were killed by the winter of 1837–8.

♃ 62. *R.* MICROCA'RPA *Lindl.* The small-fruited Rose.

*Identification.* Lindl. Ros. Mon., 130. t. 18.; Dec. Prod., 2. p. 601.
*Synonyme.* *R.* cymòsa *Tratt. Ros.* 1. p. 87.
*Engravings.* Lindl. Rosar. Monog., t. 18.; and our *fig.* 631.

631. *R.* microcàrpa.

*Spec. Char., &c.* Prickles scattered, recurved. Leaflets 3—5, lanceolate, shining, the two surfaces different in colour. Petioles pilose. Stipules bristle-shaped or awl-shaped, scarcely attached to the petiole, deciduous. Flowers disposed in dichotomous corymbs. Peduncles and calyxes glabrous. Styles scarcely protruded higher than the plane of the spreading of the flower. Fruit globose, pea-shaped, scarlet, shining. Allied to *R.* Bánksiæ. (*Dec. Prod.*) A rambling sub-evergreen shrub. China, in the province of Canton. Height 8 ft. to 10 ft. Introd. 1822. Flowers white, numerous, small; May to September.

♃ 63. *R.* HY'STRIX *Lindl.* The Porcupine Rose.

*Identification.* Lindl. Ros Monog., p. 129.; Don's Mill., 2. p. 594.
*Engravings.* Lindl. Ros. Monog., t. 17.; and our *fig.* 632.

632. *R.* hýstrix.

*Spec. Char., &c.* Prickles on branches unequal, crowded, larger ones falcate, small ones straight. Stipules very narrow, united half way, the free part deciduous. Leaflets three, smooth, ovate, shining, simply serrated, with a few prickles on the middle nerve. Sepals nearly entire; permanent. Fruit bristly. (*Don's Mill.*) A rambling shrub, with flagelliform branches. China and Japan. Flowers large, solitary. Fruit oblong purple.

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*Other Species and Varieties of* Ròsa. — In the catalogue of Messrs. Loddiges, 147 species are registered, of all of which, with one or two exceptions, there are living plants. The garden varieties in the same collection amount to about 1500. There is indeed no end to the garden varieties, new ones being every year raised from seed, and old varieties every year disappearing. New species are also occasionally introduced, and several have been lately raised in the Hort. Soc. Garden from Himalayan seeds. For species we recommend the cultivator to have recourse to the collection of Messrs. Loddiges, and for garden varieties to the most fashionable nurserymen of the time. In Rivers's *Abridged List of Roses*, 1840, he recommends, as a selection for small gardens: — Provence roses, 7; moss roses, 8; hybrid Provence roses, 7; hybrid China roses, 20; French roses, 16; *R*òsa álba, 9; damask roses, 6; Scotch roses, 8; sweet briars, 5; Austrian briars, 2; Ayrshire roses, 6; *R*òsa multiflòra, 3; evergreen roses, 7; Boursault roses, 4; Banksian roses, 2; hybrid climbing roses, 4; perpetual roses, 12; Bourbon roses, 7; China roses, 15; tea-scented roses, 11; miniature roses, 5; Noisette roses, 12; musk roses, 3; Macartney roses, 3; *R*òsa microphýlla, 3. In all, 185 sorts; which would form a very efficient rosarium.

*Soil and Situation adapted for Roses.*

The common wild roses will grow in very poor soil, provided it be dry; but all the cultivated sorts require a soil naturally light and free, and more or less enriched. The situation should be open and airy, exposed to the east, or, in warm situations, to the north, rather than to the south; because the intensity of the sun's rays accelerates too rapidly the expansion of the flowers, and also diminishes the colour and fragrance of the petals. A rose-garden

fully exposed to the sun during the whole day, may have a useful degree o shade given to it by the distribution of a few standard roses of not less than 8 or 10 feet in height; or by the introduction of frames of wood or wire, in the forms of obelisks, gnomons, crosses, columns surmounted by globes, or cones, on which climbing roses may be trained. These would produce no bad effect by their drip, and yet by their shadow, which would vary with the position of the sun, they would afford a salutary protection to the dwarf roses by which they were surrounded; and thus produce, in some degree, the same object as a cool situation and exposure. The rose is one of those plants that will not thrive in the neighbourhood of towns where the prevailing fuel is pit-coal; hence the roses grown within a circle of ten miles of the metropolis are much inferior in beauty to those grown at double that distance.

In country residences, roses are generally distributed in the margins of shrubberies along with other flowering shrubs: but, considering the culture they require, it is impossible they can thrive in such a situation; and, even if they did thrive, the kind of beauty which they would produce would be of a character so different from that of a general shrubbery, as to require their exclusion from it. The only roses fit to be planted in a shrubbery are the single kinds, in their wild state. Roses, and all other kinds of shrubs or trees, that are far removed from a state of nature, and valued for something produced by art, either in their flowers, fruit, habit, or leaves, should be grown in situations where the art which produced the artificial effect can be employed. Hence all fruit-bearing trees and shrubs should be grown in orchards, in kitchen-gardens, or in some place by themselves, so as to admit of properly cultivating the soil, and managing the plants. Roses, and all double-flowering shrubs, ought, in like manner, to be grown by themselves; and the same principle will apply to shrubs having any peculiarity in their foliage, and even in their mode of growth. The continuation of the peculiarity may not always require a rich soil; on the contrary, it will generally be found to have been produced by a soil and situation of a peculiar nature: but that peculiarity of soil it is as much the object of art to imitate, as it is to form the rich soil, and favourable situation, which produce large or double flowers, or large and succulent fruit, or variegated leaves. Hence, to cultivate roses properly, they must be grown either in groups by themselves on a lawn, or in a flower-garden; or be connected into a system of groups or beds, in a rosarium, or rose-garden. On this subject, and on the pruning, and general treatment of roses, we must refer to the first edition of this work, where it will be found given at great length, illustrated with numerous diagrams, having reference to propagation, training, pruning, the formation of rosariums, for which several plans are given, and the destruction of insects.

*Rosarium, or Rosetum.*—Where it is intended to plant a collection of roses, the best effect will be produced by devoting a group to each section; such as one to moss roses, another to Noisettes, a third to Scotch roses, &c. These groups ought generally to be planted with dwarfs rather than standards; because the former are more conveniently looked upon by the spectator: but a handsome standard may, frequently, occupy the centre of each group, if it is a circle or a square; and two or three in a line, or radiating from a point, if it is of a long or an irregular form. Sometimes a group may be surrounded by a row of standards, which, in that case, should have clear stems, not less than 7 ft. high, through which the dwarf roses may be seen by persons walking round the group. Standard roses, in general, have the best effect when formed into an avenue along the margin of a walk; and for this purpose they are very suitable for common flower-gardens, where the groups, instead of being planted with dwarf roses, are filled with herbaceous plants. The sizes of the different groups in a rosarium ought to be proportioned to the number of varieties belonging to the section to be planted in each, the bulk which they attain, and their habit of growth. For these purposes, the *Abridged List* of Messrs. Rivers may be taken as a basis; and, as it contains 27 groups, these may be represented by 27 beds of different dimensions.

## Genus XIII.

### LO'WE*A* Lindl. The Lowea. *Lin. Syst.* Icosándria Polygýnia.

*Identification.* Lindl. Bot. Reg., t. 1261.
*Synonyme.* *R*ò*sa* sp. *Pall.* and *Lindl.* in *Ros. Monog.*
*Derivation.* In compliment to the *Rev. Mr. Lowe*, Travelling Bachelor of the University of Cambridge. (*Lindley* in *Bot. Reg.* t. 1261.)

*Gen. Char., &c.* *Calyx* with the tube contracted at the mouth. *Petals* 5. *Stamens* and *Carpels* numerous as in *R*ò*sa*. *Leaf* simple, exstipulate. *Prickles* often compound. (*Lindl.*)

*Leaves* simple, alternate, exstipulate, deciduous; serrated. *Flowers* yellow, marked with purple. — An undershrub. Native of Persia.

#### 1. L. *BERBERIFO'LIA* *Lindl.* The Berberry-leaved Lowea.

*Identification.* Lindley in Bot. Reg., t. 1261.
*Synonymes.* *R*ò*sa* simplicifò*l*ia *Sal. Hort. Allert.* 359., *R. berberifò*lia *Pall.*, *Lindl. Rosarum Monog.* p. 1. French edition, p. 23., *Dec. Prod.* 2. p. 602., *Spreng. Syst.* 2. p. 546., *Wallroth Monog* p. 25.
*Engravings.* Bot. Reg., t. 1261.; Redouté Ros., 1. t. 2.; and our *fig.* 633.

*Spec. Char., &c.* Leaves undivided, without stipules, obovate-cuneated, serrated at the tip. Prickles decurrent, and of the colour of ivory. Sepals entire, subspathulate. Petals yellow, marked with purple at the base. (*Dec. Prod.*) An undershrub. Persia, near Amadan, where it abounds in saltish soil; and also in fields at the bottom of Mount Elwend, and in the Desert of Soongaria. Height 2 ft. Introd. in 1790. Flowers yellow and purple; June and July. Somewhat difficult of culture, and not a free flowerer; but it is readily propagated by budding on the dog rose, or by seeds, which it produces on the Continent in abundance in common soil.

633. L. *berberifò*lia.

*Varieties.* Several are described in *Dec. Prod.*, and some hybrids have recently been raised between this species and some kinds of *R*ò*sa*.

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## Sect. V. Po'meæ *Lindl.*

## Genus XIV.

### CRATÆ'GUS *Lindl.* The Thorn. *Lin. Syst.* Icosándria Di-Pentagýnia.

*Identification.* Lindl. in Lin. Trans., 13. p. 105.; Dec. Prod., 2. p. 626.; Don's Mill., 2. p. 598.
*Synonymes.* Cratæ'gus and Méspilus sp. of *Lin.* and others; Néflier, Alisier, and Aubépine, *Fr*; Doorn, Uzbeer, and Mispel, *Ger.*; Doorn, *Dutch*; Cratægo, *Ital.*; and Espino, *Span.*
*Derivation.* From *kratos*, strength; in reference to the hardness and strength of the wood.

*Gen. Char.* *Calyx* with an urceolate tube, and a 5-cleft limb. *Petals* orbicular, spreading. *Ovarium* 2—5-celled. *Styles* 2—5, glabrous. *Pome* fleshy, ovate, closed; the calycine teeth, or the thickened disk, containing a bony putamen. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, chiefly deciduous, but in part evergreen: angular or toothed. *Flowers* in corymbs, usually white. *Bracteas* subulate, deciduous. *Fruit* red, yellow, or black. Decaying leaves yellow, or reddish yellow.

Trees or shrubs, small, deciduous, sometimes evergreen; mostly natives of Europe and North America, and some of them of Asia and the North of Africa. One of them, the common hawthorn, is well known throughout the Middle and North of Europe, as a hedge plant. The species all flower and fruit freely; and the wood of all of them is hard and durable, and the plants of considerable longevity. Almost all the flowers are white, and the fruit is generally red; though in some sorts it is yellow, purple, black, or green. All the species ripen fruit in the neighbourhood of London, most of them abundantly; by which, or by grafting or budding on the common hawthorn, they are generally propagated. When the species which have naturally a dwarf habit of growth are intended to assume the character of low trees, they are grafted standard high upon *C. Oxyacántha*, *C.* coccínea, or on some other of the strong-growing kinds; in consequence of which practice, this genus furnishes a greater number of handsome small trees for ornamental grounds than any other ligneous family whatever. All the species will grow on any soil that is tolerably dry; but they will not grow vigorously in a soil that is not deep and free, and rich rather than poor. Whether as small trees or as shrubs, they are all admirably adapted for planting grounds of limited extent; and especially for small gardens in the neighbourhood of large towns.

## § i. *Coccíneæ.*

*Sect. Char., &c.* Leaves cordate, lobed, acutely serrated. Flowers and fruit large. The plants also large, and of free and vigorous growth.

### ☿ 1. *C.* COCCI'NEA *L.* The scarlet-*fruited* Thorn.

*Identification.* Lin. Sp., 682.; Pursh Amer. Sept., 1. p. 337.; Dec. Prod., 2. p. 627.; Don's Mill., 2. p. 599.

*Synonymes.* *C.* æstivàlis *Booth*; *Méspilus* æstivàlis *Walt. Fl. Car.*; *M.* coccínea *Mill. Nouv. Du Ham.*; thornless American Azarole; Néflier écarlate, *Fr.*; scharlachrothe Mispel, *Ger.*; Lazzeruolo rosso, *Ital.*

*Engravings.* Pluk., t. 46. f. 4.; Dend. Brit., t. 62.; Bot. Mag., t. 3432.; our *fig.* 677. in p. 386.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 634.

634. Cratæ'gus coccínea.

*Spec. Char., &c.* Disks of leaves cordate-ovate, angled with lobes, acutely serrated, glabrous. Petioles and calyxes pubescent, glanded. metals or-

biculate. Styles 5. Fruit scarlet, eatable. (*Dec. Prod.*) A low tree. North America, from Canada to Carolina, in hedges and woods. Height 15 ft. to 20 ft. Introduced in 1683. Flowers white; May and June. Fruit large, round, or somewhat pear-shaped, scarlet; ripe in September. Decaying leaves yellow, inclining to scarlet. Naked young wood dark-coloured; old wood with a whitish bark.

*Varieties.* It would be easy to procure as many varieties of this species as there are of the common hawthorn, by raising some thousands of plants every year from seed, and selecting from the seed-beds plants indicating any peculiarity of leaf or of habit; but, as in the nurseries the most rapid way of producing saleable plants of this, and all the other species and varieties of *Cratægus*, is found to be by grafting on the common hawthorn, very few seedlings are raised, and the varieties in cultivation are only the three or four following: —

♆ C. *c.* 2 *corállina.* *C.* corállina *Lodd. Cat.*; the *C.* pyrifórmis and *C.* pectinàta of some collections. (*fig.* 678. in p. 387.) — The leaves and the entire plant are, perhaps, rather smaller than in the species; the habit of the tree is decidedly more upright and fastigiate; and the fruit is smaller, long, and of a fine coral red; whence the name is probably derived, though, in the first edition of the Hort. Soc. *Catalogue*, it is called the red-branched hawthorn. The plants at Messrs. Loddiges's, however, exhibit only a slight degree of redness in the branches of the young wood.

♆ C. *c.* 3 *indentàta.* *C.* indentàta *Lodd. Cat.*; *C.* geórgica *Doug.* (*fig.* 678. in p. 387.) — The leaves are smaller, and less lobed, than those of the species; the plant is also weaker, of upright habit, and with a smooth clear bark. It is very prolific in flowers and fruit.

♆ C. *c.* 4 *máxima* Lodd. Cat. *C.* c. spinòsa *Godefroy*; *C.* acerifòlia *Hort.*; *C.* ? flabellàta *Hort.* — The leaves are larger than those of any other variety; and the fruit is also large. As we have not seen living plants of *C.* flabellàta, but only dried specimens sent from Terenure and the Humbeque Nursery, we are not absolutely certain that *C.* flabellàta and *C.* c. máxima are the same; but we feel quite certain that they both belong to *C.* coccínea. We are informed that the *C.* flabellàta of some nurseries is *C.* tanacetifòlia; which certainly has its leaves more flabellate, or fan-like, than any variety of *C.* coccínea.

♆ ♆ C. *c.* 5 *neapolitàna* Hort. *Méspilus* constantinopolitàna *Godefroy.* — Plants were in Messrs. Loddiges's collection in 1837.

♆ 2. *C.* GLANDULO'SA *W.* The glandular Thorn.

*Identification.* Willd. Sp., 2. p. 1002., not of Michx.; Pursh Amer. Sept., 1. p. 337.; Dec. Prod., 2. p. 627.; Don's Mill., 2. p. 599.
*Synonymes.* ? *C.* sanguínea *Pall. Fl. Ros.* 1. t. 11.; ? *Méspilus* rotundifòlia *Ehrh. Beitr.* 3. p. 20.; *Pỹrus* glandulòsa *Mœnch*; *C.* rotundifòlia *Booth.*
*Engravings.* ? Pall. Fl. Ross., 1. t. 11.; Lod. Bot. Cab., t. 1012; Dend. Brit., t. 58.; our *fig.* 680. in p. 388.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 636.

*Spec. Char., &c.* Leaves with the disk obovate-wedge-shaped, angled, glabrous, glossy. Petioles, stipules, and sepals glanded. Fruit oval, scarlet; nuts 4—5; flesh hard and dry. (*Dec. Prod.*) A low tree. North America, in Canada and on the Alleghany Mountains, and also found on the Rocky Mountains. Height 12 ft. to 15 ft. Introduced in 1750. Flowers white; May and June. Fruit scarlet; ripe in September.

*Varieties.*

♆ C. *g.* 2 *succulénta* Fisch., *Méspilus* succulénta *Booth*, has the fruit larger than that of the species, and succulent, juicy, and eatable. We have seen only one plant of this variety; but we were assured by the late M. Fischer of Göttingen, that there are several in the botanic garden there, and in various other collections in Germany.

✝ C. g. 3 *subvillòsa*, *C.* subvillòsa *Fisch.*, (our *fig.* 636., and *fig.* 681. in p. 388.) is apparently another variety of the preceding sort, or, perhaps, of *C.* coccínea. It is very distinct in appearance, from its villous twisted leaves, and stunted tortuous shoots; but, from its having been only three or four years in the country, very little is known of its habit of growth, which seems to be rather more loose than that of *C.* glandulòsa. There are plants in the Horticultural Society's Garden, and in Messrs. Loddiges's arboretum.

635. *C.* g. subvillosa.

Differs from the preceding sort in the stipules and calyxes being glandular, and in the head of the tree forming a dense mass of small twigs. Being a small compact tree, of somewhat conical or fastigiate habit, and of comparatively low growth, and yet very prolific in flowers and fruit, it is well adapted for small gardens; and, being at the same time full of branches and very spiny, it is better calculated than many other kinds of American *C*ratæ'gus for forming field hedges.

636. *C.* glandulòsa

## § ii. *Punctàtæ.*

*Sect. Char.* Leaves not lobed, large, with many nerves. Bark white, or ash-coloured. Fruit large, or small.

### ✝ 3. *C.* PUNCTA'TA *Ait.* The dotted-*fruited* Thorn.

*Identification.* Ait. Hort. Kew., 2. p. 169.; Jacq. Hort. Vind., 1. and 28.; Pursh Fl. Amer. Sept., 1. p. 338.; Dec. Prod., 2. p. 627.; Don's Mill., 2. p. 598.

*Synonymes.* *C.* Crûs-galli *Du Roi*; *M*éspilus cuneifòlia *Ehrh. Beitr.* 3. p. 21.; *M.* punctàta *Link Enum.*; *M.* cornifòlia *Lam. Encyc.* 4. p. 444.

*Engravings.* Jac. Hort., 1. t. 28.; our *figs.* 682. and 683. in p. 389.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 637.

637. *C.* punctàta.

*Spec. Char., &c.* Leaves obovate-wedge-shaped, glabrous, serrated. Calyx a little villose; its sepals awl-shaped, entire. Fruit usually dotted. (*Dec. Prod.*) A small tree. North America, in the woods and swamps of Virginia and Carolina; where, according to Pursh, it grows to a handsome size, particularly the variety having yellow fruit. Height 15 ft. to 30 ft. Introduced in 1746. Flowers white; May and June. Fruit scarlet; ripe in September. Leaves dropping yellow. Naked young wood grey.

*Varieties.* There are four forms of this species in British gardens.

♆ C. *p.* 2 *rùbra* Pursh, *C.* edùlis *Ronalds* (*fig.* 682. in p. 389.) is the most common, and is a spreading tree, growing to the height of from 15 ft. to 30 ft., with red fruit, and, when old, with few thorns.

♆ C. *p.* 3 *rùbra stricta* Hort., *C.* p. stricta *Ronalds*, has the fruit red, like the preceding sort; but the general habit of the plant is fastigiate, like that of the following sort.

♆ C. *p.* 4 *aúrea* Pursh, *C.* p. flàva *Hort.*, *C.* dúlcis *Ronalds*, *C.* edùlis *Lodd. Cat.*, *C.* pentágyna flàva *Godefroy* (*fig.* 682. in p. 389.), is a tree like *C.* p. rùbra, with yellow fruit, and also, when old, with few thorns.

♆ C. *p.* 5 *brevispìna* Doug., and our *fig.* 638. — A very handsome fastigiate tree, with large, very dark purplish red fruit. Hort. Soc. Garden.

638. *C.* p. brevispìna.

The wood is so hard that the Indians of the west coast of America make wedges of it for splitting trees.

### ♆ 4. *C.* PYRIFO'LIA *Ait.* The Pear-tree-leaved Thorn.

*Identification.* Ait. Hort. Kew., 2. p. 168.; Pursh Fl. Amer. Sept., 1. p. 337.; Dec. Prod., 2. p. 627 Don's Mill., 2. p. 599.

*Synonymes.* *C.* leucophlœ'os (white-barked) *Mœnch Weiss.* p. 31. t. 2.; *C.* radiàta *Lodd. Cat.* edit. 1836; *C.* tomentòsa *Du Roi Harbk.* 1. p. 183.; *C.* latifòlia *Pers.*; *Méspilus* latifòlia *Lam. Encyc.* 4. p. 444.; *M.* Calpodéndron *Ehrh. Beitr.*; *M.* pyrifòlia *Link Enum.*; *M.* cornifòlia *Poir.*; *C.* latifòlia *Ronalds*; *C.* cornifòlia *Booth*; Lazzarollo perino, *Ital.*

*Engravings.* Mœnch Weiss., p. 31. t. 2.; Wats. Dend. Brit., t. 61.; Bot. Reg., t. 1877.; our *fig.* 684. in p. 389.; the plate of the species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 639.

*Spec. Char., &c.* In some instances spiny, in some without spines. Leaves ovate-elliptical, incisely serrated, obscurely plaited, a little hairy. Flowers 3-styled. Calyx slightly villose; its sepals linear-lanceolate, serrated. (*Dec. Prod.*) A low tree, generally spineless. North America, from Pennsylvania to Carolina, in woods and rocky places. Height 20 ft. to 25 ft. Introduced in 1765. Flowers white; June and July, rather later than *C.* punctàta. Fruit small, yellowish red; ripe early in September, and more eagerly sought after by birds than those of any other species.

639. *C.* pyrifòlia.

The leaves of young trees are larger, and the fruit smaller, than those of most other species; the leaves are also more strongly plaited, having the appearance of being furrowed from the midrib to the margin. When the fruit is not eaten by birds, it shrivels, turns black, and remains on the tree throughout the winter. The leaves drop early, of a rich yellow.

## § iii. *Macracánthæ.*

*Sect. Char.* Leaves large, ovate-oblong, slightly lobed and serrated, with numerous nerves, and subplicate. Fruit small. Spines very long. Tree vigorous and spreading.

### ✝ 5. *C.* MACRACA'NTHA *Lodd. Cat.* The long-spined Thorn.

*Synonymes.* *C.* glanduiòsa β macrántha *Lindl.*, Bot. Reg., t. 1912.; *C.* spìna longíssima in the Hammersmith Nursery; *C.* pyrifòra *Torrey*; see *Bot. Reg.* t. 1957.

*Engravings.* Bot. Reg., t. 1912.; our *fig.* 685. in p. 390.; the plate of this species in our Arb. Brit., 1st edit., vol. vi.; and our *fig.* 640.

*Spec. Char, &c.* Spines longer than the leaves, and numerous. Leaves ovate-oblong, somewhat acuminate, slightly lobed and bluntly serrated. nerved, and subplicate. Fruit small, or middle-sized, of a shining red, and very succulent when ripe. Tree open, spreading, and of very vigorous

640. *C. macracántha*

growth. The shoots straight, and tending upwards at an angle of 45°. North America, and the most common species in the northern states. Height 10 ft. to 30 ft. Introduced in 1819. Flowers white; May and June. Fruit scarlet, rather smaller than that of *C.* coccínea; ripe in September.

*Variety.*

♆ C. *m.* 2 *mìnor* (*fig.* 686. in p. 390.) only differs from the species in having smaller fruit. There are plants at Somerford Hall, Staffordshire.

Raised from American seed, in 1819, in the nursery of Messrs. Falla, at Gateshead, near Newcastle; whence it was sent to the Edinburgh Botanic Garden, under the name of the large American azarole.

## § iv. *Crús-gálli.*

*Sect. Char.* Leaves without lobes, obovate-oblong or obovate-lanceolate, more or less serrated, and of a dark shining green, with petioles margined by the decurrence of the leaf. Fruit small, or middle-sized, round, dark green till nearly ripe, and, when ripe, scarlet. Spines very long, and bent like the spur of a cock.

### ♆ 6. *C.* Cru's-ga'lli *L.* The Cock's-spur Thorn.

*Identification.* Lin. Sp., p. 632.; Dec. Prod., 2. p. 626.; Pursh Fl. Amer. Sept., 1. p. 338.; Don's Mill., 2. p. 598.

*Synonymes.* Cratæ'gus lùcida *Wang. Am.* t. 17. f. 42., and *Mill. Dict.*; *C.* cuneifòlia *Lodd. Cat.*; Méspilus lùcida *Ehrh. Beitr.*; *M.* Crús-gálli *Poir.*; *M.* hyemàlis *Walt.*; *M.* cuneifòlia *Mœnch*; Nefler Pied de Coc, *Fr.*; glänzende Mispel, *Ger.*; Lazzarollo spinoso, *Ital.*

*Engravings.* Wang. Am., t. 17. f. 42.; Dend. Brit., t. 56.; our *fig.* 687. in p. 391.; the plate of the species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 641.

*Spec. Char., &c.* Spines long. Leaves obovate-wedge-shaped, nearly sessile, glossy, glabrous, falling off late. Stipules linear. Lobes of the calyx lanceolate, and somewhat serrated. Styles 2. Fruit scarlet. (*Dec. Prod.*) A low tree. North America; common in woods and hedges, and on the banks of rivers, from Canada to Carolina. Height 15 ft. to 20 ft. Intro-

641. *C.* Crús-gálli.

duced in 1691. Flowers white; May and June. Fruit small, green, and at length scarlet; ripe in September and October. Leaves retained longer than in most of the species; so that in the South of England it appears a sub-evergreen, retaining also its showy fruit through the winter.

*arieties.*

♃ C. *C.* 2 *spléndens* Dec. Prod., Ait. Hort. Kew. ii. p. 170., Pluk. t. 46. f. 1. *C. a*rbutifòlia and *C.* spléndens *Lodd. Cat.* (*fig.* 688. in p. 391.) — Leaves obovate-wedge-shaped, and shining; and, being produced in abundance, the plant has a splendid appearance.

♃ C. *C.* 3 *pyracanthifòlia* Dec. Prod., Ait. Hort. Kew. ii. p. 170 *C. p*yracanthifòlia *Lodd. Cat.*; *M*éspilus lùcida *Dum. Cours. Bot. Cult.* ed. 2. v. p. 448. (*fig.* 693. in p. 391.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 642.) — Leaves oblong, with the upper part lan-

642. *C.* C.-g. *p*yracanthifòlia.

ceolate; the lower part tending to wedge-shaped. This, even when only 3 or 4 years grafted, forms a singular little old-looking tree, spreading like a miniature cedar of Lebanon.

ϒ *C.* C. 4 *salicifòlia* Dec. Prod., Ait. Hort. Kew. ii. p. 170. *C.* salicifòlia. (*fig.* 691. in p. 391.; and the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 643.) — Leaves oblong, with the upper part lanceolate;

643. *C.* C.-g. salicifòlia.

the lower part tending to wedge-shaped. This forms a low flat-headed tree, like the preceding variety. A plant in Messrs. Loddiges's arboretum, in 1835, after being five years grafted at a foot from the ground, was not quite 5 ft. high. The miniature trees of this variety are admirably adapted for children's gardens.

ϒ C. *C.* 5 *lineàris* Dec. Prod. *M*éspilus lineàris *Desf. Arb.* ii. p. 156., *Poir. Suppl.* iv. p. 70.; *C.* lineàris *Lodd. Cat.* (*fig.* 690. in p. 391.) — Leaves linear-lanceolate. Spines, or thorns, few and shortish. Styles 1—2. Fruit of a yellowish red.

■ C. *C.* 6 *nàna* Dec. Prod. *M*éspilus nàna *Dum. Cours. Suppl.* p. 386. — Branchlets tomentose in some degree. Leaves oval-lanceolate; the under surface paler than the upper. A shrub, or, when trained to a single stem, a miniature tree.

This species, being one of the first introduced into England, has been more cultivated than any other American thorn; and on the whole it is one of the most splendid in appearance, from its smooth, shining, dark green foliage, and the great abundance of its fine white flowers, and dark red fruit which remains long on the tree. In the South of England, and in the climate of London, in warm sheltered situations, where the soil is rich and moist, it retains its leaves and fruit through great part of the winter, so as to appear quite evergreen.

ϒ 7. *C.* (C.) OVALIFO'LIA *Horn.* The oval-leaved Thorn.

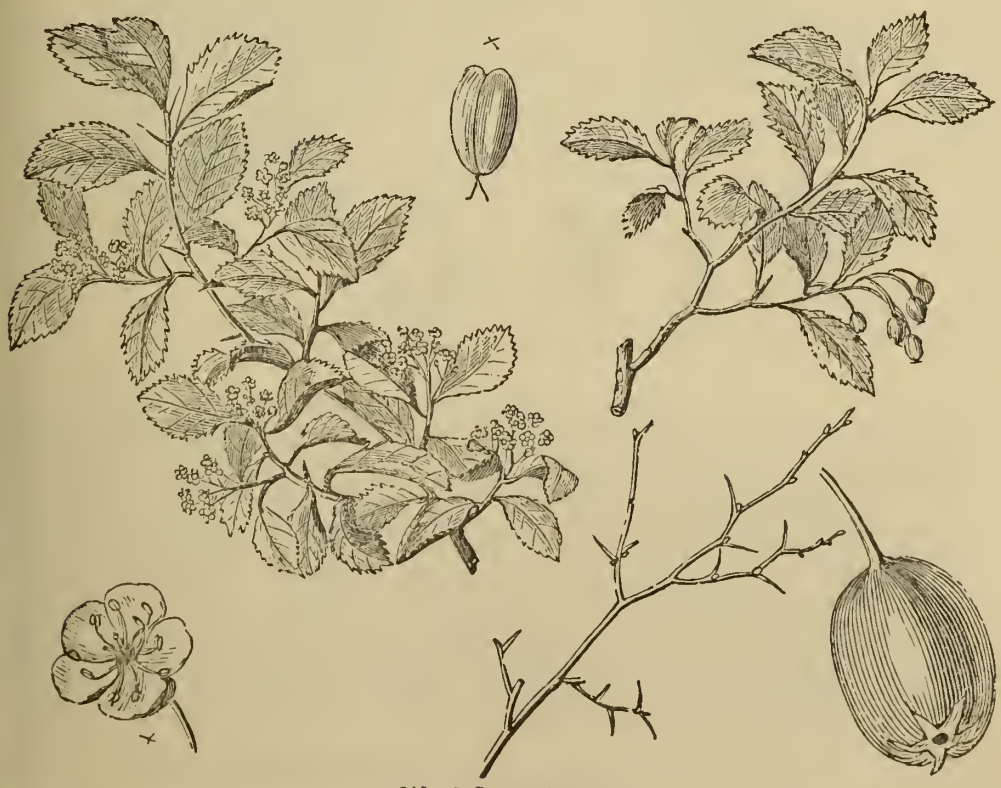
*Identification.* Hornem. Hort. Hafn. Suppl., 52.; Dec. Prod., 2. p. 627.; Don's Mill., 2. p. 598.
*Synonyme.* *C.* elliptica *Lodd. Cat.*; *C.* Crús-gálli ovalifòlia *Bot. Reg.* t. 1860.
*Engravings.* Bot. Reg., t. 1860.; our *fig.* 692. in p. 391.; the plate of this species in Arb. Brit. 1st edit., vol. vi.; and our *fig.* 644.

*Spec. Char., &c.* Leaves oval, serrated, a little pilose on both surfaces, and shining on the upper one. Stipules half-heart-shaped, incisely serrated, with glanded serratures. (*Dec. Prod.*) A low tree. North America. Height 15 ft. to 20 ft. Introd. in 1810. Flowers white. A very distinct variety of *C.* Crús-gálli, with a loose spreading habit of growth, and broad leaves.

644. C. C. ovalifòlia.

## ♃ 8. *C.* (C.) PRUNIFO`LIA *Bosc.* The Plum-leaved Thorn.

*Identification.* Bosc ined.; Dec. Prod., 2. p. 627.; Don's Mill., 2. p. 598.
*Synonymes.* *Méspilus prunifòlia Poir. Dict.* 4. p. 443.; *C.* caroliniàna *Lodd. Cat.*; Lazzeruolino, *Ital.*



645. C. C. prunifòlia.

*Engravings.* Bot. Reg., t. 1868.; our *fig.* 689. in p. 391.; the plate of this tree in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 645.

*Spec. Char., &c.* Leaves with the disk broadly ovate, unequally serrated, and glabrous; the petioles bearing a few glands. Sepals with glanded serratures. Peduncle and calyx a little villose. Seeds 2 in a pome. (*Dec. Prod.*) A low tree. North America. Height 15 ft. to 20 ft. Introduced in 1818, or before. Flowers white; May and June. Fruit scarlet.

Differs from the preceding variety in having broader and shorter leaves, a more compact and fastigiate habit of growth, and rather more thorns on the branches. The leaves of this and the preceding kinds die off of a much deeper red than the narrow-leaved varieties, which often drop quite green, yellow, or of a yellowish red.

## § v. *Nìgræ.*

*Sect. Char.* Leaves middle-sized, deeply lobed. Lobes pointed. Fruit round, black or purple. Tree rather fastigiate, with few or no spines. Bark smooth.

### ☿ 9. *C.* NI'GRÁ *Waldst. et Kit.* The black-*fruited* Thorn.

*Identification.* Waldst. et Kit. Pl. Rar. Hung., t. 61.; Dec. Prod., 2. p. 628.; Don's Mill., 2. p. 599.
*Synonymes.* Méspilus nìgra *Willd. Enum.* 524.; *C.* carpática *Lodd. Cat.*
*Engravings.* Waldst. et Kit. Pl. Rar. Hung., t. 61.; *fig.* 694. in p. 392.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 646.

646. *C.* nìgra.

*Spec. Char., &c.* Leaves sinuately lobed, and serrated, somewhat wedge-shaped, though truncately so, at the base; whitely villose beneath. Stipules oblong, serrately cut. Calyxes villose; the lobes slightly toothed. Styles 5. Fruit black. (*Dec. Prod.*) A low tree. Hungary. Height 15 ft. to 20 ft., throwing up numerous suckers from its widely spreading roots, which soon cover the ground with a forest of bushes. In England, where it is generally propagated by grafting on the common thorn, it forms a very handsome, upright, somewhat fastigiate tree, from 20 ft. to 30 ft. high, putting forth its leaves, in mild seasons, in February or March. Introduced in 1819. Flowers white; April and May. Fruit black; ripe in July and August.

*Variety.* *C.* fúsca *Jacq.*, judging from a seedling plant in the Hort. Soc. Garden, appears to belong to this species.

Nightingales are said to be attracted by this tree, probably because it is particularly liable to be attacked by insects, and because numerous caterpillars

are to be found on it about the time when the nightingale is in full song. The same property of attracting nightingales is ascribed to the common hawthorn, in *La Théorie du Jardinage, &c.*, published in 1709.

♀ 10. *C.* PURPU'REA *Bosc.* The purple-*branched* Thorn.

*Identification.* Bosc ined.; Dec. Prod., 2. p. 628.; Don's Mill., 2. p. 599.
*Synonyme.* *C.* sanguinea *Hort.*
*Engravings.* Wats. Dend. Brit., t. 60.; our *fig.* 695. in p. 392.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 647.

647. *C.* purpùrea.

*Spec. Char., &c.* Branches dark purple. Leaves ovate, cuneate at the base, lobed with broad lobes, serrated, glabrous, or pubescent beneath. Stipules somewhat circular, serrated with glanded serratures. (*Dec. Prod.*) A shrub or low tree. Altaic Mountains. Height 6 ft. to 10 ft. Introduced in 1822. Flowers white; early in April; being the very first species of *Cratæ'gus* that comes into flower in the neighbourhood of London, excepting always the Glastonbury thorn. Fruit dark red or purple, sometimes yellow, very succulent; ripe in July.

*Variety.*

♀ C. *p.* ♀ *altàica*; *C.* altàica *Led., Lod. Cat.* (*fig.* 696. in p. 393.); has the leaves somewhat larger than the species, and they appear a little earlier.

It forms an upright, rigid, rather slow-growing tree, without thorns. It has a few small branches, and is not densely clothed with leaves. It has a starved and somewhat stunted appearance, and is readily known by the purple colour of its young shoots. The bark of the old wood is of a dark purple or brown colour, and rough and scaly. The fruit is small, round, and most commonly of a dark purple; but it varies to pale yellow, or a milk white, and red, on the same plant. It ripens about the end of July, and is very soft and juicy, but soon drops off. The tree is interesting from its early flowering, and the dark colour of the anthers of its flowers, which contrasts strongly with the whiteness of the petals. The leaves are also large, and of a peculiar shape.

## § vi. *Douglàsii.*

*Sect. Char.* Leaves small, and not lobed as in the preceding section; furnished with numerous parallel nerves, somewhat like those of *C.* punctàta. Spines

rather numerous and rigid. Fruit small, and dark purple; pulp soft and watery.

### ♆ 11. *C.* DOUGLA'S*II* Lindl Douglas's Thorn.

*Identification.* Bot. Reg., t. 1810.; Lod. Cat., edit. 1832.
*Engravings.* Bot. Reg., t. 1810.; our *fig.* 697. in p. 393.; the plate of the species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 648.

648. *C.* Douglàsii.

*Spec. Char., &c.* Branches ascending. Spines rigid, straightish, now short, now very long. Leaves some obovate, some oval, gashedly serrated, acute; at the base wedge-shaped, glabrous; in the autumn, remarkably leathery, and they then acquire a purplish cast, and are shining. (*Lindl.*) A shrub or low tree. North-West America. Height 10 ft. to 15 ft. Introduced in 1827. Flowers white; May. Fruit small, dark purple; ripe in August. Decaying leaves purplish, leathery, shining, falling off early, like those of *C.* punctàta and *C. p*yrifòlia. Naked young wood purplish.

This is a very distinct sort, more particularly as it respects the colour of the fruit, and the colour and texture of the leaves. The general habit of the plant is fastigiate; and it is one of the latest kinds in leafing in the spring. The flowers and fruit are produced in great abundance, and both are very ornamental.

## § vii. *Flàvæ.*

*Sect. Char.* Leaves small, obovate, slightly lobed, and serrated. Flowers frequently solitary. Spines numerous, straight, and more slender than in any other division. Fruit top, or pear, shaped; yellow, or greenish yellow.

### ♆ 12. *C.* FLA'VA *Ait.* The yellow-*fruited* Thorn.

*Identification.* Ait. Hort. Kew., 2. p. 169.; Pursh Fl. Amer. Sept., 1. p. 338.; Dec. Prod., 2. p. 628.; Don's Mill., 2. p. 600.
*Synonymes.* *C.* glandulòsa *Michx. Fl. Bor. Amer.* 1. p. 288., not of Walt.; *Méspilus* Michaúxii Pers. Syn. 2. p. 38.; *C.* caroliniàna *Poir. Dict.* 4. p. 442.; *C.* flavíssima *Hort.*; *C.* ? turbinàta *Pursh.*
*Engravings.* Bot. Reg., t. 1939.; *fig.* 698. in p. 394.; the plate of the species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 649.

*Spec. Char., &c.* Disks of leaves obovate-wedge-shaped, slightly obed, crenately serrate, upon short petioles. Stipules glanded. Flowers mostly solitary. Sepals glanded. Fruit top-shaped, yellow, or yellowish green, Nuts 4 in a fruit. (*Dec. Prod.*) A low spreading tree. North America.

649. *C.* flàva.

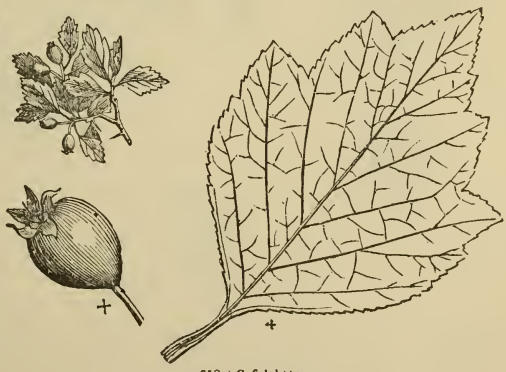
from Virginia to Carolina. Height 15 ft. to 20 ft. Introduced in 1724. Flowers white; May. Haws yellow; ripe in October. Decaying leaves rich yellow.

The flowers and the fruit are neither produced in abundance, nor make any great show; but the tree has a marked character from its general form, and the horizontal tendency of its branches.

♈ 13. *C.* (F.) LOBA'TA *Bosc.* The lobed-*leaved* Thorn.

*Identification.* Bosc ined.; Dec. Prod., 2. p. 628.; Don's Mill., 2. p. 599.
*Synonymes.* Méspilus lobàta *Poir. Suppl.* 4. p. 71.; *C.* lùtea *Poir.*
*Engravings.* *Fig.* 699. in p. 394.; and our *fig.* 650.

*Spec. Char., &c.* Branches a little villose. Disks of leaves ovate, unequally serrated, or lobed, slightly downy beneath, upon very short petioles. Stipules cut. Flowers in loose corymbs. (*Dec. Prod.*) A tree closely resembling *C.* flàva in general appearance. Native country supposed to be America. Height 10 ft. to 15 ft. Introduced in 1819. Flowers white; May. Fruit green; ripe in October.



650. *C.* f. lobata.

Differing from *C.* flàva in having some of the leaves with larger lobes, and some of the spines larger. The flowers are sparingly produced, amongst dense tufts of leaves; and the fruit, which is green when ripe, is still less abundant. It is pear-shaped, and very different from that of every other kind of Cratæ'gus, except *C.* flàva and *C.* f. trilobàta.

♀ 14. *C.* (F.) TRILOBA'TA *Lodd. Cat.* The three-lobed-*leaved* Thorn.

*Identification.* Lodd. Cat., edit. 1832.
*Synonyme.* *C.* spinosissima *Lee.*
*Engraving.* *Fig.* 700. in p. 395.

*Spec. Char., &c.* Leaves ovate-cuneate, notched and serrated. Petioles slender. Surface flat, shining, somewhat veined. Branches small, thickly beset with slender thorns. Habit spreading. A hybrid, raised from seed in the Hammersmith Nursery, about 1820, or before. It forms a tree in general appearance resembling *C.* flàva, but with the branches much less vigorous, and more thorny. The fruit is yellow, slightly tinged with red; and what distinguishes it from the two allied sorts is, that its leaves die off, in autumn, of an intensely deep scarlet.

## § viii. *Apiifòliæ.*

*Sect. Char.* Leaves deltoid, or somewhat resembling those of the common thorn. The fruit is also of the same colour; but the tree has a totally different habit, having the shoots loose and spreading, weak, and almost without thorns.

♀ 15. *C.* APIIFO'LIA *Michx.* The Parsley-leaved Thorn.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 287., not of Med.; Dec. Prod., 2. p. 627.; Don's Mill. 2. p. 599.
*Synonymes.* *C.* Oxyacântha *Walt. Carol.* 147.; *C.* apiifòlia màjor *Lodd. Cat.*
*Engravings.* *Fig.* 702. in p. 395.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 651.

651. *C.* apiifòlia.

*Spec. Char., &c.* Leaves deltoid, cut into lobes that are acute and incisely toothed. Pedicels in the corymb villose, mostly simple. Tube of calyx villose. Sepals obscurely serrated. Fruit scarlet. (*Dec. Prod.*) A low spreading tree with flexible branches. Virginia and Carolina, in moist woods. Height 10 ft. to 20 ft. Introduced in 1812. Flowers white; May and June. Haws scarlet; ripe in October. Decaying leaves rich yellow.

*Variety.*

♀ C. a. 2 *mìnor*, *C.* apiifòlia *Lodd. Cat.* (*fig.* 701. in p. 395.), has the leaves smaller than those of the species, and more fringed at the

edges, like those of the common parsley; but this fringed appearance is by no means constant, either in the variety or in the species. This variety forms a most ornamental low bush; or, when grafted standard high, a beautiful pendent tree.

## § ix. *Microcárpæ.*

*Sect. Char.* Fruit small, round, red. Flowers small, produced in corymbs, later in the season than in any of the other species. Spines few, but sometimes very large.

### ♆ 16. *C.* CORDA'TA *Mill.* The heart-shaped-*leaved* Thorn.

*Identification.* Mill. Ic., t. 179.; Dec. Prod., 2. p. 628.; Don's Mill., 2. p. 599.
*Synonymes.* *M.* Phænópyrum *Linn.*; *M.* cordàta *Mill.*; *C.* populifòlia *Walt. Car.* 147., and *Pursh Sept.* 1. 337.; *Méspilus* acerifòlia *Poir. Dict.* 4. p. 442.
*Engravings.* Mill. Ic., t. 179.; Wats. Dend. Brit. t. 63.; Bot. Reg., t. 1151.; *fig.* 703. in p. 396. the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 652.

652 *C.* cordàta.

*Spec. Char., &c.* Disks of leaves cordate-ovate, angled by lobes, glabrous Petioles and calyxes without glands. Styles 5 in a flower. (*Dec. Prod.*) A compact, close-headed, small tree, with leaves of a deep shining green. Canada to Virginia, in hedges and rocky places. Height 20 ft. to 30 ft. Introduced in 1738. Flowers white, in numerous terminal corymbs; May and June. Fruit small, scarlet; ripe in October.

A very distinct and handsome species.

### ♆ 17. *C.* SPATHULA'TA *Elliott.* The spathula-*shaped-leaved* Thorn.

*Identification.* Elliott Fl. S. Car., 1. p. 552.; Lodd. Bot. Cat., t. 1261.
*Synonymes.* *C.* microcárpa *Lindl. Bot. Reg.* t. 1846.; *C.* flórida *Godefroy.*
*Engravings.* Bot. Cab., t. 1261.; Bot. Reg., t. 1846.; *fig.* 704. in p. 396.; the plate of the species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 653.

*Spec. Char., &c.* Subspinose. Leaves in fascicles, oblong cuneated, 3-cleft, lobed and crenated, smooth, shining. Corymbs many-flowered. Calyx smooth; segments ( ate, quite entire. Fruit ovate, subrotund, smooth

653. *C. spathulata.*

5-celled; shell thin. (*Lindl.*) A low tree; in England a shrub, unless when grafted standard high. Georgia and Carolina. Height 12 ft. to 15 ft.; in England 6 ft. to 8 ft. Introduced in 1806. Flowers white; May and June. Fruit bright red; ripe in October.

*Variety.*

ϒ *C.* s. 2 *geórgica*. *C.* geórgica *Lod.*—Leaves 5-lobed, on longer footstalks, and rather smaller than the species. This variety and the species were killed to the ground in the winter of 1837-8. (See *Gard. Mag*, vol. xvi. p. 3.)

A slow-growing, very neat, little bush or tree, with slender, smooth, drooping branches, and something of the habit of *C. Oxyacántha*. Its leaves have a very handsome appearance, and are remarkably shining, and deep green: they usually grow in clusters; have a long stalk, tapering upwards into a blade, which is sometimes nearly entire, with only a tooth or two at the end; sometimes they are 3-lobed, with crenated segments; and occasionally they are deeply 3-parted; their form is always more or less spathulate. The stipules of the more vigorous branches are large and leafy. The flowers are white, and appear at the same time as those of *C.* cordàta. The fruit is rather abundant, but small.

## § x. Azaròli.

*Sect. Char.* Fruit large, round or pear-shaped; good to eat; yellow or red; the yellow fruit generally produced on fastigiate species or varieties; and the red on trees with a spreading and rather a drooping head. Leaves wedge-shaped, 3-cleft or more, shining, pubescent or hairy. Spines few or none.

### ϒ 18. *C. Azaròlus* L. The Azarole Thorn.

*Identification.* Lin. Sp., 683.; Dec. Prod., 2. p. 629.; Don's Mill., 2. p. 600.
*Synonymes.* *Pyrus Azaròlus* Scop. Carn. No. 557., J. Bauh. Hist. 1. p. 6[illegible].; *Méspilus Azaròlus* All. Ped., N. Du Ham. 4. p. 158.; Néflier Azarole, Neflier de Naples, Epine d'Espagne, Pommettes à deux Close *Fr.*; Azarol Mispel, *Ger.*; Azzeruolo, *Ital.*
*Engravings.* N. Du Ham., 4. t. 42.; Bot. Rep., t. 579.; *fig.* 705. in p. 397.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 654.

*Spec. Char., &c.* Leaves pubescent, wedge-shaped at the base, trifid; lobes blunt, and with a few large teeth. Branchlets, corymbs, and calyxes pubescent.

654. *C. Azaròlus*

Sepals obtuse. Styles 1—3 Fruit globose, scarlet. Seeds usually two; and hence the name, common at Montpelier, *pommettes à deux closes.* (*Dec. Prod.*) A low tree, never found wild as a bush. South of France and Italy, in small woods and in rough places. Height 20 ft. to 30 ft; in England 10 ft. to 20 ft. Introduced in 1656. Flowers white; May and June. Fruit red; ripe in September. Leaves drop with the first frost, without much change of colour.

*Varieties.* In the *Nouveau Du Hamel*, six varieties are enumerated, viz.: — 1. Mespilus Arònia, with the leaves hairy beneath; 2. Azarole, with large deep red fruit; 3. Azarole, with yellowish white fruit; 4. Azarole, with long fruit of a whitish yellow; 5. Azarole, with double flowers; and, 6. the White Azarole of Italy. With the exception of the first-mentioned, none of these varieties, as far as we know, are in British gardens.

The fruit, when ripe, is mealy, and somewhat acid; and, in Italy and the Levant, it is occasionally sent to table.

♃ 19. *C.* (*A.*) MAROCCA'NA *Pers.* The Morocco Thorn.

*Identification.* Pers. Syn., 2. p. 37.; Dec. Prod., 2. p. 628.; Don's Mill., 2. p. 600.
*Synonymes.* DeCandolle expresses a doubt whether *C.* maúra *Lin. fil. Sup.* 253. be not a synonyme of this species; Sarrour, *Arabian.*
*Engravings.* Bot. Reg., 1855.; *fig.* 707. in p. 397.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 655.

*Spec. Char., &c.* Leaves wedge-shaped, 3-lobed, and pinnatifid, glabrous, glandless. Stipules cut, rather palmately. Flowers upon long peduncles, in terminal glabrous corymbs. Sepals obtuse. Styles 2. (*Dec. Prod.*) A handsome pyramidal low tree, with dark-coloured branches. Palestine, on Mount Sinai and St. Catherine; and ? Morocco. Height 15 ft. to 35 ft. Flowers pure white, very fragrant; May and June. Fruit scarlet; ripe in October.

Closely resembling *C. Azaròlus*, but smaller in all its parts. It produces its leaves very early in the season, in mild winters even in January; and it retains them very late. It is a small, but decided tree, and may be considered one of the handsomest species of the genus. Horticultural Society's Garden

655. C. (A.) maroccàna.

## ✝ 20. *C. Aro'nia Bosc.* The Aronia Thorn.

*Identification.* Bosc ined.; Dec. Prod., 2. p. 629.; Don's Mill., 2. p. 601.
*Synonymes.* Mespilus *Aròn*ia *Willd. Enum. Suppl.* and *N. Du Ham.* 4. p. 158.; *C. Azaròlus* β *Willd. Sp.*; *C.* fissa *Lodd. Cat.*
*Engravings.* Pococke's Travels, t. 85.; Bot. Reg., 1897.; *fig.* 706. in p. 397.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 656.

656. C. ronia.

*Spec. Char., &c.* Branchlets pubescent. Leaves pubescent on the under surface, wedge-shaped at the base, 3-cleft; lobes obtuse, entire, each ending

in 3 obtuse mucronate teeth. Fruit yellow. (*Dec. Prod.*) An erect-branched low tree. Greece and the Levant. Height 15 ft. to 20 ft. Introduced in 1810. Flowers white; May and June. Haws yellow, smooth, large, succulent, agreeable to eat; ripe in August and September, and hanging on the tree till the leaves drop in November or December. Naked young wood dark-coloured.

Remarkable for the abundance of its large yellow fruit, which are good to eat, and have been made into excellent tarts with Siberian crabs.

### ☥ 21. *C.* ORIENTALIS *Bosc.* The Eastern Thorn.

*Identification.* Bosc ined.; Bot. Rep., t. 590.; Don's Mill., 2. p. 600.
*Synonymes.* Méspilus orientàlis *Tourn.* and *Poir. Suppl.* 4. p. 72.; *C.* odoratissima *Bot. Rep.* and *Lod. Cat.*; *C.* tanacetifòlia var. β taúrica *Dec. Prod.* 2. p. 629.
*Engravings.* Bot. Reg., 1885.; *fig.* 708. in p. 398.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 657.

657. *C.* orientàlis.

*Spec. Char., &c.* Branches whitely tomentose. Leaves 3-lobed, downy beneath; the two side lobes ovate, and having tooth-like incisions at the tip; the middle lobe trifid. Stipules broad and cut. (*Dec. Prod.*) A low spreading tree. Levant. Height 15 ft. to 20 ft. Introduced in 1810. Flowers white; May and June. Haws numerous, large, yellowish red or coral colour, very agreeable to the taste; ripe in August and September, and remaining on sometimes after the leaves.

*Variety.*

☥ C. o. 2 *sanguínea*, *C.* sanguínea *Schrader Index Sem. Hort. Acad. Gott.* 1834, *C.* orientàlis *Lindl. Bot. Reg.* t. 1852., and *fig.* 709. in p. 398., has the fruit of a very dark purplish red, or port wine, colour. Dr. Lindley considers this "the genuine *M*éspilus orientàlis of Tournefort, with villous celery-like leaves, and a large, purple, 5-cornered, smooth fruit," which description, we think, indicates rather

the following species. It is a native of the Crimea, and the parts bordering on the Black Sea; and was introduced in 1810. On account of the colour of its fruit, and the abundance in which it is produced, it deserves a place in every collection.

Readily distinguished from most other species by its very hoary branches, which are loose, rambling, crossing each other, and somewhat pendulous. It is late in producing its leaves, and also its flowers: the latter generally appear with those of *C.* tanacetifòlia, about the end of May (in 1836, on the 17th of June).

♆ 22. *C.* TANACETIFO'LIA *Pers.* The Tansy-leaved Thorn.

*Identification.* Pers. Syn., 2. p. 38.; Dec. Prod., 2. p. 629.; Don's Mill., 2. p. 601.
*Synonymes.* *Mèspilus* tannacetifòlia *Poir. Dict.* 4. p. 440., and *N. Du Ham.*; *M.* pinnàta *Dum. Cours.*, *Sm. Exot.* t. 85.; DeCandolle doubts whether *Mèspilus* Celsiàna Dum. Cours. Suppl. p. 286. be different from this species; Lazzeruolo turco, *Ital.*
*Engravings.* Bot. Rep., t. 591.; Sm. Exot. Bot., t. 85.; Bot. Reg., 1884.; *fig.* 710. in p. 398.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 658.

658. *C.* tanacetifòlia.

*Spec. Char., &c.* Leaves pinnatifidly cut, hairy; lobes oblong, acute, having a few teeth. Sepals acutish, reflexed, hairy. Styles 5. Fruit globose, yellowish green. (*Dec. Prod.*) A robust-growing fastigiate tree, with upright rigid branches, commonly terminating in thorny points. Levant. Height 20 ft. to 30 ft. Introduced in 1789. Flowers white; May and June. Haws large, yellow; ripe in October.

*Varieties.*

♆ C. *t.* 2 *glàbra* Lodd. (*fig.* 711. in p. 398.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 659.) has shining leaves, and fruit about half the size of that of the species, of a reddish yellow. A hybrid between *C.* tanacetifòlia and *C.* Oxyacántha. Introduced from Germany about 1810.

♆ *C. t.* 3 *Celsiàna.* *Mèspilus* Celsiàna Dumont de Cours., vol. vii. p. 286.; *C.* t. 3 Lee*àna* Arb. Brit. 1st ed.; *C.* incìsa *Lee.* (*fig.* 712. in p. 399.; plate in Arb. Brit., 1st edit.; and our *fig.* 660.)—Somewhat resembling *C.* orientàlis; but the leaves much larger, and more deeply cut, and the trees of a more robust, erect, and fastigiate habit. Fruit large, yellow. Cultivated by Cels, and supposed by Dumont de Courset to be a native of Persia or the Levant. Erroneously said to have been raised in the Hammersmith Nursery. A splendid tree,

659. *C. t.* glàbra.

most striking in appearance, from its large and deeply cut foliage, and its strong, upright, vigorous shoots.

660. *C. t.* Celsiàna.

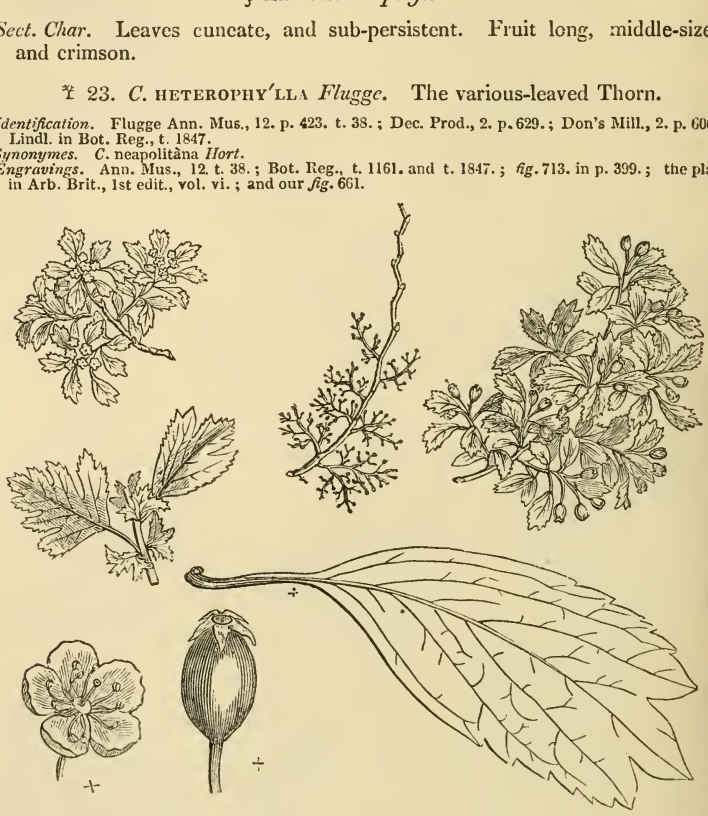
The leaves and calyxes are covered on both sides with long hairs. The globular slightly compressed fruit has somewhat the appearance of being ribbed like a melon; is larger than that of any other species of the genus, except *C. Arònia* and *C.* mexicàna; greenish yellow when ripe; and easily distinguishable by the bracteas generally adhering to it. The foliage is the latest in appearing of any of the species, except *C.* orientàlis, frequently equally late.

## § xi. *Heterophýlla.*

*Sect. Char.* Leaves cuneate, and sub-persistent. Fruit long, middle-sized, and crimson.

### ♃ 23. *C.* HETEROPHY'LLA *Flugge.* The various-leaved Thorn.

*Identification.* Flugge Ann. Mus., 12. p. 423. t. 38.; Dec. Prod., 2. p. 629.; Don's Mill., 2. p. 600.; Lindl. in Bot. Reg., t. 1847.
*Synonymes.* *C.* neapolitàna *Hort.*
*Engravings.* Ann. Mus., 12. t. 38.; Bot. Reg., t. 1161. and t. 1847.; *fig.* 713. in p. 399.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 661.



661. *C.* heterophýlla.

*Spec. Char., &c.* Leaves bright, falling off late, lanceolate-cuneate, toothed at the apex, 3-cleft; segments serrate. Tube of the calyx fusiform. Cymes many-flowered. Flowers 1-styled. Fruit ovate, including one nut, with a hard bony shell, and one seed. Stipules large, pinnatifid. (*Lindl.*) A low tree, with ascending branches. Native country uncertain, most probably the South of Europe; possibly a hybrid between the common hawthorn, and the azarole, or some other species. Height 10 ft. to 20 ft. Cultivated in 1816. Flowers white, produced in great abundance; May. Fruit rich crimson, resembling in shape that of the common hawthorn, but narrower; ripe in September and October.

A very handsome and most desirable species; producing its leaves and flowers early in the spring, and retaining its leaves and fruit till the first autumnal frosts.

## § xii. *Oxyacánthæ.*

*Sect. Char.* Leaves obovate, trifid, or variously cut. Flowers numerous, in corymbs. Fruit generally red.

♀ 24. *C. Oxyaca'ntha L* The sharp-thorned Cratægus, *or common Hawthorn.*

*Identification.* Lin. Sp., 683.; Dec. Prod., 2. p. 628.; Don's Mill., 2. p. 600.

*Synonymes.* The Pyracantha of the Greeks; *Méspilus Oxyacántha Gærtn.* and *N. Du Ham.*; E'pine blanche, noble E'pine, Bois de Mai, Scuelleir Aubépine, Néflier Aubépine, *Fr.*; Hagedorn, gemeiner Weissdorn, *Ger.*; Hagetoan, *Dan.*; Hagetorn, *Swed.*; Acanta da siepe, Azzarolo salvatico, and Bianco Spino, *Ital.*; Espino blanco, *Span.*; White Thorn, Maybush, Quick, Quickset, May.

*Derivation.* Booth derives the word Haw from *hage*, or *hæg*, a hedge; consequently he makes hawthorn signify hedgethorn. Quick signifies live; and was, probably, applied, from live hedges made of hawthorn being used instead of fences of dead branches of trees. Whitethorn, from the profusion of its white flowers and its being thorny, or possibly from its white bark, as compared with that of the blackthorn, *Prùnus spinòsa.* May and Maybush have reference both to the time of flowering of the plant, and to its use in the May or floral games. The French name Aubépine, refers to its flowering in spring, or in what may poetically be called the morning of the year; *aube* signifying the dawning of the day.

*Engravings.* Gærtn. Fruct., 2. t. 87.; Eng. Bot., t. 2054.; *fig.* 715. in p. 400.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 662.

662. *C. Oxyacántha.*

*Spec. Char., &c.* Leaves obovate-wedge-shaped, almost entire, or trifid or cut, glabrous, rather glossy. Corymbs of several flowers. Sepals glandless, acute. Styles 1—3. (*Dec. Prod.*) A shrub or low tree. Europe, common in hedges, and varying much in different situations. Flowers white; May. Haws red or scarlet; ripe in September.

*Varieties.* These are very numerous, and some of them very distinct. In the following enumeration we have confined ourselves to such as we have actually seen in the Hort. Soc. Garden, or in the arboretum of Messrs. Loddiges.

A. *Varieties differing from the Species in the general Form and Mode of Growth.*

♀ C. O. 2 *stricta* Lodd. Cat., *C. O.* rígida *Ronalds*, (the plate in Arb. Brit.,

663. C. O. strictæ.

1st edit., vol. vi. ; and our *fig.* 663.) has the shoots upright, and the general habit as fastigiate as that of a Lombardy poplar. It was discovered in a bed of seedlings in Messrs. Ronald's Nursery, about 1825, and forms a very distinct and desirable variety.

† C. O. 3 *péndula* Lodd. Cat. has drooping branches. A very marked variety of this kind, which was selected from a bed of seedlings by General Monckton, is said to be in the collection of thorns at Somerford Hall.

664. C. O. reginæ.

† C. O. 4 *reginæ* Hort. *Queen* Mary's *Thorn.* (The plate of the tree in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 664.) — The parent tree is in

a garden near Edinburgh, which once belonged to the Regent Murray. It is very old, and its branches have somewhat of a drooping character; but whether sufficiently so to constitute a variety worth propagating as a distinct kind appears to us very doubtful. (*Lodd.*)

* C. O. 5 *Celsiàna Hort.* is also somewhat fastigiate in its habit; but it is a much more slender-growing plant; and we have never seen a specimen in a situation where it could display its natural form and mode of growth.

* C. O. 6 *capitàta* Smith of Ayr differs from the species chiefly in being of a somewhat more fastigiate habit, and in producing its flowers in close heads, mostly at the extremities of its branches.

* C. O. 7 *flexuòsa* Smith of Ayr has the small branches twisted in a zigzag manner. Horticultural Society's Garden.

B. *Varieties differing in the Colour of the Flowers.*

* C. O. 8 *ròsea* Hort.; E'pinier Marron, *Fr.* (*fig.* 725. in p. 401.); has the petals pink, with white claws, and is a well-known and very beautiful variety.

* C. O. 9 *punícea* Lodd. Cat., *C. O. ròsea* supérba *Hort.*, has larger petals, which are of a dark red, and without white on the claws.

C. *Varieties differing in the Developement or Structure of the Flowers.*

* C. O. 10 *múltiplex* Hort., *C. O.* flòre plèno *Hort.* (*fig.* 722. in p. 401.), has double white flowers, which die off of a beautiful pink; and which, being produced in great profusion, and lasting a long time, render this a most desirable variety: accordingly, it is to be found in almost every shrubbery and garden.

* C. O. 11 *punícea flòre plèno* Hort.—Flowers double, nearly as dark and brilliant as *C. O.* punícea. Imported in ? 1832, by Mr. Masters of Canterbury.

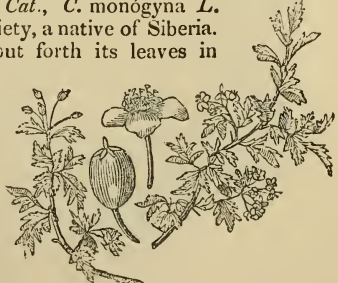
* C. O. 12 *monógyna*, *C.* monógyna *Jacq.*, has flowers with only one style, like *C. O.* sibírica, but does not flower early like that variety.

* C. O. 13 *apétala* Lodd. Cat.—This remarkable variety has the flowers without petals, or very nearly so.

D. *Varieties differing in the Time of Flowering.*

* C. O. 14 *præ'cox* Hort., the Glastonbury Thorn, comes into leaf in January or February, and sometimes even in autumn; so that occasionally, in mild seasons, it may be in flower on Christmas-day.

* C. O. 15 *sibírica*, *C.* sibírica *Lodd. Cat.*, *C.* monógyna *L.* (*fig.* 665.), is an early leafing variety, a native of Siberia. In mild seasons, it begins to put forth its leaves in January; and in dry summers it loses them proportionately soon in the autumn. On account of its early leafing and flowering, it well merits a place in collections. The flowers have only one style; but, as there are other varieties having only one style which do not flower early, we have not adopted Linnæus's name of *C.* monógyna to this variety, but to another, a native of Britain, which does not flower earlier than the common hawthorn.



665. *C. O.* sibírica.

* C. O. 16 *transylvánica* Booth, from the plant in the Hort. Soc. Garden, appears to be nearly, if not quite, the same as *C. O.* sibírica.

E. *Varieties differing in the Colour of the Fruit.*

ϒ C. O. 17 *melanocárpa*, *C.* físsa *Lee*, *C.* Oxyacántha platyphýlla *Lodd. Cat.*, *C.* platyphýlla *Lindl.* in *Bot. Reg.* t. 1874., (*fig.* 718. in p. 400.; the plate in Arb. Brit., 1st edit., vol. vi., and our *fig.* 666.)

666. *C. O.* melanocárpa.

also has the fruit black, as the name implies. It differs from the preceding variety chiefly in being of more vigorous growth; in having its leaves of a deep rich green, and in flowering a week later. A splendid low tree, deserving a place in every collection.

667. *C. O.* Oliveriàna.

ϒ C. O 18 *Oliveriàna* · *C.* Oliveriàna Bosc, Dec. Prod. ii. p. 630., and

Don's Mill. ii. p. 601.; *C.* Olivèr*ia* Lodd. Cat.; *C.* orientàlis *Lodd. Cat., Bot. Reg.* t. 1953. (*fig.* 719. in p. 400.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 667.); has the leaves small and hoary, and the fruit also small and black. A very distinct variety. Hort. Soc.

ϒ C. O. 19 *aúrea* Hort., *C.* flàva *Hort.* (*fig.* 723. in p. 401.), has the leaves like *C. O.* obtusàta, and the fruit roundish, and of a golden yellow. This is a very distinct variety, and ought never to be omitted in collections.

ϒ C. O. 20 *aurantìaca* Booth is said to have orange-coloured fruit; but there are only small plants of it in the London gardens. Mr. Wilson found, in Ayrshire, a variety with greenish orange fruit. (*Hook.*)

ϒ C. O. 21 *leucocárpa*, a variety with white haws, is said to have been discovered in a hedge near Bampton, in Oxfordshire; but we have never seen it.

F. *Varieties differing in having the Fruit woolly.*

ϒ C. O. 22 *eriocárpa* Lindl., *C.* eriocárpa *Lodd. Cat.* (*fig.* 720. in p. 400.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 668.), is a robust

668. *C. O.* eriocárpa.

rapidly growing variety, with large leaves, and strong thick shoots; a clear white bark, and few thorns. It is very prolific in flowers, and the fruit which succeeds them is woolly in its young state, but not large. If ever the hawthorn should be cultivated for its timber, to supply the wood-engravers as a substitute for box, this variety and *C. O.* melanocárpa will deserve the preference. Hort. Soc.

G. *Varieties differing in the Form of the Leaves.*

ϒ C. O. 23 *obtusàta* Dec. Prod.; *M*éspilus *O*xyacántha integrifòlia *Wallr. Sched.* 219.; *C.* oxyacanthòides *Thuill. Fl. Par.* 245., *Bot. Reg.* t. 1128., *Dec. Fl. Fr.* iv. p. 433.; *C. O*xyacántha *Fl. Dan.* t. 335.; the French hawthorn. (*fig.* 714. in p. 399.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 669.) — Leaves rather rhomb-shaped at the base, obovate, undivided, or with three obtuse lobes,

669. *C. O.* obtusàta.

crenate, of the same colour on both surfaces. Styles 1—3. Fruit containing more than 1 seed. Distinguished from the species by its smaller, obovate, less cut, flat, and shining leaves. *C.* lùcida *Smith of Ayr*, *C.* oxyacanthöìdes lùcida *Sweet*, is scarcely or not at all different from this variety.

† C. O. 24 *quercifòlia* Booth (*fig.* 721. in p. 401.) appears very distinct in regard to foliage.

C. O. *C. O* laciniàta.

† C. O 25 *laciniàta*, *C.* laciniàta *Lodd. Cat* (*fig.* 716. in p. 400.; th.

plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 670.), has finely cut leaves; the shoots are comparatively slender, the plant less robust, and the fruit smaller, than in the species. It is a very distinct and elegant variety.

♈ C. O. 26 *pteridifòlia*, *C. p*terifòlia *Lodd. Cat.* (*fig.* 717. in p. 400.), resembles the preceding, but the leaves are longer in proportion to their breadth, and more elegantly cut.

♈ C. O. 27 *oxyphýlla* Monckton. — Leaves much larger than those of the species. Raised by General Monckton, at Somerford, in ? 1837. Horticultural Society's Garden.

H. *Varieties differing in the Colour of the Leaves.*

♈ C. O. 28 *fòliis aúreis* Lodd. Cat., *C.* lutéscens *Booth*, has leaves variegated with yellow; but they have generally a ragged and diseased appearance, when fully expanded; though, like those of most other variegated deciduous plants, when first opening in spring, they are strikingly showy and distinct.

♈ C. O. 29 *fòliis argénteis* Hort. has leaves variegated with white; but, like the preceding variety, it cannot be recommended as handsome at any other period than when the leaves are first expanding.

♈ C. O. 30 *lùcida.* —We apply this name to a very distinct and very beautiful-leaved variety, which forms a standard in the southern boundary hedge of the Hort. Soc. Garden, and which, we trust, will soon be propagated in the nurseries. The leaves are large, regularly cut, somewhat coriaceous in texture, and of a fine shining green. The plant is of vigorous growth.

The common hawthorn, in its wild state, is a shrub or small tree, with a smooth bark and very hard wood. The rate of growth, when the plant is young, and in a good soil and climate, is from 1 foot to 2 or 3 feet a year, for the first three or four years; afterwards its growth is slower, till the shrub or tree has attained the height of 12 or 15 feet, when its shoots are produced chiefly in a lateral direction, tending to increase the width of the head of the tree rather than its height. In a wild state, it is commonly found as a large dense bush; but, pruned by accident or design to a single stem, it forms one of the most beautiful and durable trees of the third rank that can be planted: interesting and valuable for its sweet-scented flowers in May, and for its fruit in autumn, which supplies food for some of the smaller birds during part of the winter. In hedges, the hawthorn does not flower and fruit very abundantly when closely and frequently clipped; but, when the hedges are only cut in at the sides, so as to be kept within bounds, and the summits of the plants are left free and untouched, they flower and fruit as freely as when trained as separate trees. The plant lives for a century or two, and there are examples of it between 40 ft. and 50 ft. in height, with trunks upwards of 3 ft. in diameter at 1 ft. from the ground.

The wood of the hawthorn is very hard, and difficult to work: its colour is white, but with a yellowish tinge; its grain is fine, and it takes a beautiful polish; but it is not much used in the arts, because it is seldom found of sufficient size, and is, besides, apt to warp. It weighs, when green, 68 lb. 12 oz. per cubic foot; and, when dry, 57 lb. 5 oz. It contracts, by drying, one eighth of its bulk. It is employed for the handles of hammers, the teeth of mill-wheels, for flails and mallets, and, when heated at the fire, for canes and walking-sticks. The branches are used, in the country, for heating ovens; a purpose for which they are very proper, as they give out much heat, and possess the property of burning as readily when green, as in their dry state. They are not less useful in the formation of dead hedges, for the protection of seeds, or of newly planted live hedges or single trees; and they will last a considerable time without decaying; especially when they have been cut in autumn. The leaves are eaten by cattle, which, nevertheless, pay

some regard to the spines by which they are defended. The fruit is astringent. By far the most important use of the hawthorn is as a hedge plant. For this purpose, it is planted in single or in double lines, most commonly along the margin of a ditch; though, however convenient this may be with respect to fencing the plants when young, and draining the soil, it is a great drawback to their progress afterwards, by preventing their roots from extending themselves, except on one side; and, by the drainage of the ditch, it also deprives them of their natural share of moisture. Wherever thorn hedges are planted, and intended to thrive, the ground ought to be trenched at least 2 ft. in depth, manured if poor, and the plants inserted on a flat surface, so as to receive and retain the whole of the moisture that falls from the heavens.

The hawthorn will do no good unless planted in a soil naturally dry and fertile, or that has been rendered so by art. The plant is never found naturally on a wet soil; and, if planted on such a soil, it soon becomes stunted, and covered with lichens and moss. The situation should be airy; but it will grow either in exposed places, or in such as are sheltered, and even somewhat shaded, by other trees. In cases of this kind, however, it neither forms a handsome tree, nor a close thick hedge.

The species is almost always propagated by seeds, but sometimes by cuttings of the roots; which, when about half an inch in thickness, and 1 ft. or 18 in. in length, and planted with the root end undermost, speedily make large plants. Where old thorn plants are taken up, the roots may always be used for forming new hedges; but it must be acknowledged that, as they do not all send up shoots equally, some remaining a year in the ground before they do so, the preferable mode is to plant them in a nursery for the first year; or, if this is not done, they ought to be planted thick, so as to make allowance for some not pushing till the second year, and some not pushing at all.

When the hawthorn is to be raised from seed, the haws should not be gathered till they are dead ripe; which will be in October or November. As many haws contain more than one seed, they ought not to be put in the ground entire, but, if they are to be sown immediately, they must be macerated in water till the pulp is separated from the nuts; and the latter should then be mixed with dry sand, to keep them separate, and to enable the sower to scatter them equally over the surface. But, as the seeds do not come up till the second year, a saving of ground is made by keeping them the first year in a heap, technically called a rot-heap, mixed with a sufficient quantity of soil, to prevent them from heating, and to facilitate the decomposition of the pulp. These heaps are kept in the open air, and exposed to the full influence of the weather; care being taken to turn them over frequently, at least once a month, so as to equalise this influence. When the seeds are not to be prepared in a heap, they should be sown in November or December, as soon as separated from the pulp; but, when they are to be separated by decomposition in a heap, they need not be sown till the February, or even the March, of the second year; by which means fifteen or sixteen months' use of the soil is saved. They may be sown thinly in beds, the seeds being scattered so as to lie about 1 in. apart every way, and covered about a quarter of an inch. The nursery culture required is mere routine. Hawthorns ought always to be two years transplanted before they are employed for hedges; younger and untransplanted plants, though cheaper to purchase, are always the most expensive to the planter, as they require temporary protection for a longer period. As stocks, hawthorn plants may be treated like stocks for fruit trees; and the different species and varieties may be budded and grafted on them, either for dwarfs or standard high, in a similar manner. Not only the different species of *Cratæ'gus*, but those of *Méspilus*, *Sórbus*, *Pỳrus*, and even *Mâlus*, *Cydònia*, *Amelánchier*, Eriobótrya, and others, may be grafted on the common hawthorn; and in this way field hedges might be rendered ornamental, and even productive of useful fruits.

## § xiii. *Parvifòliæ.*

*Sect. Char.* Leaves small, ovate, serrated or notched, but scarcely lobed. Fruit green, or greenish yellow; rather large, hard.

### 25. *C.* PARVIFO'LIA *Ait.* The small-leaved Thorn.

*Identification.* Ait. Hort. Kew., 2. p. 169.; Dec. Prod., 2. p. 627.; Don's Mill., 2. p. 598.
*Synonymes.* Méspilus axillàris *Pers. Syn.* 2. p. 37.; *M.* tomentòsa *Poir. Dict.* 4. p. 443.; *M.* xanthocárpos *Lin. fil. Suppl.* 254.; *M.* parvifòlia *Wats. Dend. Brit.*; Cratæ'gus tomentòsa *Lin. Sp* 682., *Trew Ehr.* t. 17.; *C.* uniflòra *Du Roi*; *C.* turbinàta *Pursh*; *C.* vìridis, axillàris, betulifòlia, flórida, lineàris, *Lodd. Cat.*; Gooseberry-leaved Thorn; Lord Iley's Thorn.
*Engravings.* Trew Ehr., t. 17.; Dend. Brit., t. 65.; our *fig.* 671.; and *fig.* 727. in p. 402.

671 *C. parvifòlia.*

*Spec. Char., &c.* Leaves oval-lanceolate, incisely serrated, and pubescent. Flowers mostly solitary. Branchlets and calyxes villose. Stipules bristle-like. Sepals serrated. Fruit almost top-shaped, yellow, or yellowish green. Nuts 5. (*Dec. Prod.*) A low shrub. North America, New Jersey to Carolina, in sandy shady woods. Heigh 4 ft. to 6 ft. Introduced previously to 1713. Flowers white; May and June, rather later than in most other species. Haws large, greenish yellow; ripe in November, often hanging on the tree all the winter.

672. *C. p. flórida.*

*Varieties.*

- C. *p.* 2 *flórida*, *C.* flórida *Lodd. Cat.* (*fig.* 726. in p. 402., and our *fig.* 672.), has the leaves and fruit somewhat smaller and rounder than those of the species.
- C. *p.* 3 *grossulariæfòlia*, *C.* lineàris *Lodd. Cat.* (*fig.* 728. in p. 402., and our *fig.* 673.), has the leaves lobed, and somewhat like those of the gooseberry.

These varieties run so much into one another, that, unless they are seen together in a living state, as in Messrs. Loddiges's arboretum, it is difficult to distinguish them from the species, or from each other; for, however different the leaves may appear in our figures (see p. 402.), all the forms of these may occasionally be found on the same plant: and some plants of each variety are wholly without spines, while in others the spines are very numerous. As all of them are small plants, with flowers large in proportion to the size of the leaves, they are well adapted for exemplifying the genus *Cratæ'gus* in a miniature arboretum.

673. *p. grossulariæfòlia*

♃ 26. *C.* VIRGI'NICA *Lodd.* The Virginian Thorn.

*Identification.* Lodd. Cat., ed. 1830, and ed. 1836.
*Synonymes.* *C.* virginiàna *Hort.*, *C.* spathulàta *Michx.* and *Lindl. Bot. Reg.* t. 1890.; *C.* viridis *Hort.*
*Engravings.* Bot. Reg., t. 1890.; *fig.* 729. in p. 402.; and our *fig.* 674.

*Spec. Char., &c.* Leaves obovate, cuneate, glabrous, shining, notched, but not lobed; small. Fruit round, rather larger than a common haw, green. A low shrub. Virginia. Height 4 ft. to 5 ft. Introduced in 1812. Flowers white; June. Fruit green; October, often remaining on the branches during the winter.

674. *C.* virginica.

The plant bears a general resemblance to *C.* spathulàta (No. 17.) in its foliage and habit of growth; but the foliage of the latter is lobed, while that of the former is entire. The fruit of *C.* virgínica is, also, six times larger than that of *C.* spathulàta; and is of a dark green, while the other is of a bright red. The blossoms and fruit of *C.* virgínica are, also, produced in corymbs of twos and threes; while those of *C.* spathulàta consist of a considerable number of flowers. The species differ, also, in the foliage; which in *C.* spathulàta has long winged footstalks, while in *C.* virgínica the footstalks are short and slender. (See the leaves of *C.* virgínica *fig.* 729. in p. 402., and of *C.* spathulàta *fig.* 704. in p. 396.)

## § xiv. *Mexicàna.*

*Sect. Char.* Leaves large, oval-lanceolate, notched and serrated. Fruit large, green or greenish yellow.

♃ ♀ 27. *C.* MEXICA'NA *Moc. et Sesse.* The Mexican Thorn.

*Identification.* Moc. et Sesse Fl. Mex. icon. inedit.; Dec. Prod., 2. p. 629.; Swt. Brit. Fl.-Gard., 2d ser. t. 300.; Don's Mill., 2. p. 601.
*Synonymes.* *C.* stipulàcea *Lodd. Cat.*, see *Gard. Mag.* ix. p. 630.; *C.* Lamberti*àna* Hort.
*Engravings.* Swt. Brit Fl.-Gard., 2d ser. t. 300.; Bot. Reg., t. 1910.; our *fig.* 730. in p. 402.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 675.

*Spec. Char., &c.* Leaves oval-lanceolate, notched and serrated; acuminate, somewhat ciliated at the base. Petioles short, channeled, and with a winged margin. Stipules stalked. Corymbs terminal. Petals scarcely longer than the calycine teeth. Stamens varying from 10 to 15. Styles 2, or rarely 4. Fruit large, pale green, or yellowish, when ripe; and, with the leaves, remaining on the tree all the winter in sheltered situations. Handsome, and resembling a small apple, but not good to eat. A low tree; evergreen against a wall, and sub-evergreen as a standard in the climate of London, and southwards. Mexico, on table lands. Height 20 ft. to 30 ft.; in British gardens 10 ft. to 15 ft. Introduced in 1824. Flowers large, white; June. Fruit large, pale green, ripening against a wall in October.

675. C. mexicàna.

A remarkable and very handsome species, resembling, in general appearance, *M*éspilus grandiflòra.

## § XV. *Pyracántha.*

*Sect. Char.* Leaves oval-lanceolate, glabrous, entire, small, evergreen. Fruit numerous, of a bright coral colour.

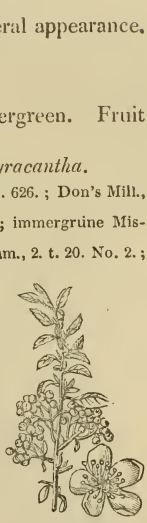
* 28. *C.* PYRACA'NTHA *Pers.* The fiery Thorn, *or Pyracantha.*

*Identification.* Pers. Syn., 2. p. 37.; Pall. Fl. Ross., 1. p. 29.; Dec. Prod., 2. p. 626.; Don's Mill., 2. p. 598.

*Synonymes.* *M*éspilus *P*yracántha *L.*; evergreen Thorn; Buisson ardent, *Fr.*; immergrüne Mispel, *Ger.*; Agazzino, *Ital.*

*Engravings.* Lob. Icon., 2. p. 182. f. 1.; Pall. Fl. Ross., t. 13. f. 2.; N. Du Ham., 2. t. 20. No. 2.; and our *fig.* 676.

*Spec. Char., &c.* Evergreen. Leaves glabrous, ovate-lanceolate, crenate. Lobes of the calyx obtuse. Styles 5. Fruit globose, scarlet, ornamental; continuing a good while upon the plant; which, on account of the colour of its fruit, and of its being a shrub, is called in France Buisson ardent. (*Dec. Prod.*) An evergreen shrub. South of Europe, in rugged places and hedges. Height 4 ft. to 6 ft. Introduced in 1629. Flowers white; May. Fruit red; ripe in September.



676. *C. Pyracántha.*

*Variety.*

* C. P. 2 *crenulàta.* *C.* crenulàta *Hort.* — A plant bearing this name in the Hort. Soc. Gard. differs very little from the species.

The flowers and fruit are produced in large corymbs, which are very ornamental; and the fruit remains on all the winter, especially when the shrub is trained against a wall. The berries are bitter, and are not so greedily eaten by birds as those of some other kinds, unless in very severe winters. The plant is very hardy, and, in the open garden, forms a handsome evergreen bush; and, if grafted standard high on the common hawthorn, it would form a most desirable evergreen low tree.

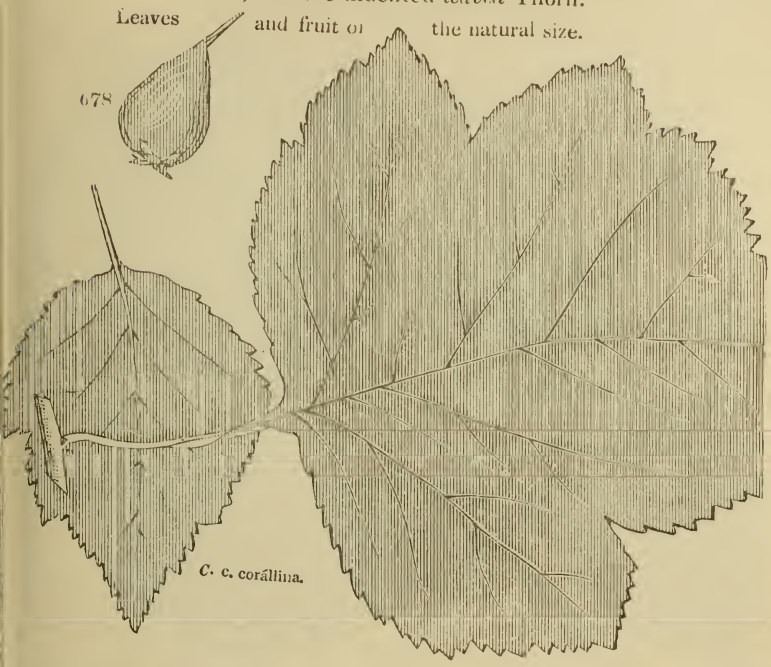
*Crat æ'gus coccínea.* The scarlet-*fruited* Thorn.
Leaves and fruit of the natural size.

677

*Cratæ`gus coccínea corállina*, and C. *c. indentàta.* The coral-*fruited* Thorn, and the indented-*leaved* Thorn.

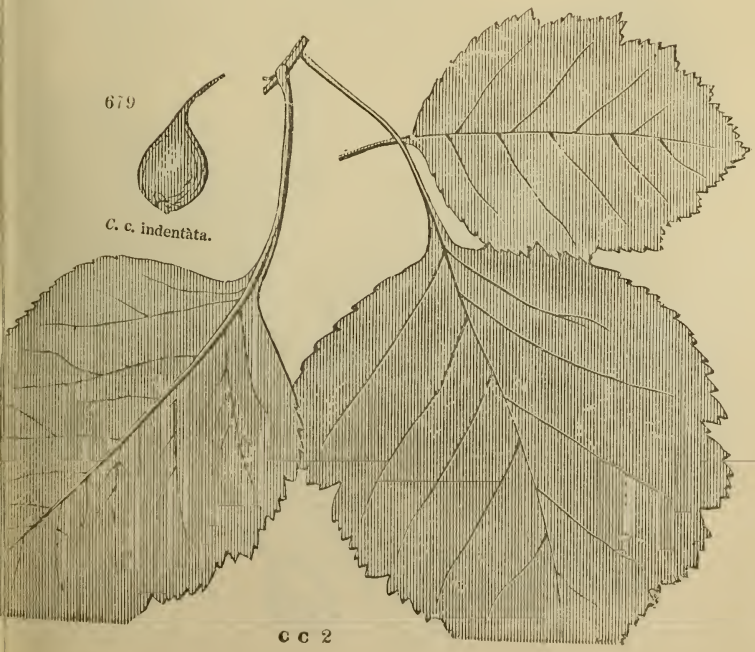
Leaves and fruit of the natural size.

678



*C.* c. corállina.

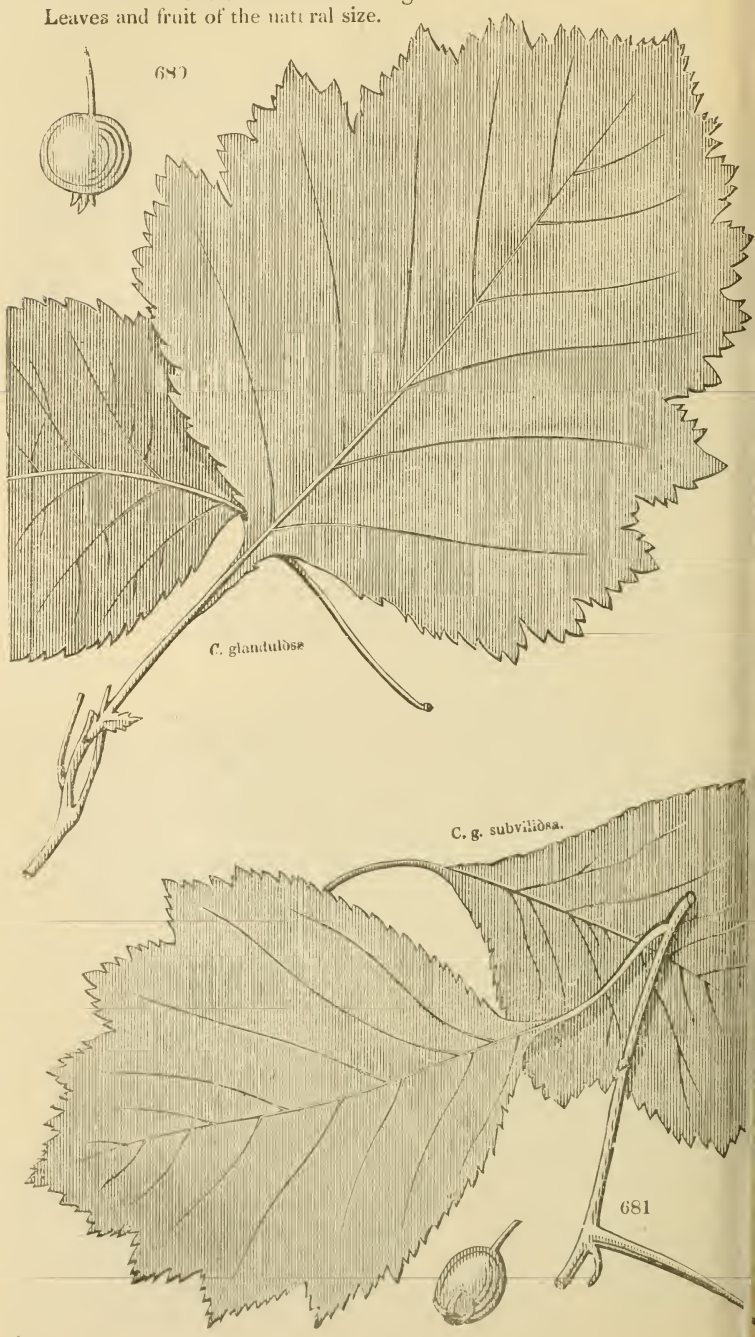
679



*C.* c. indentàta.

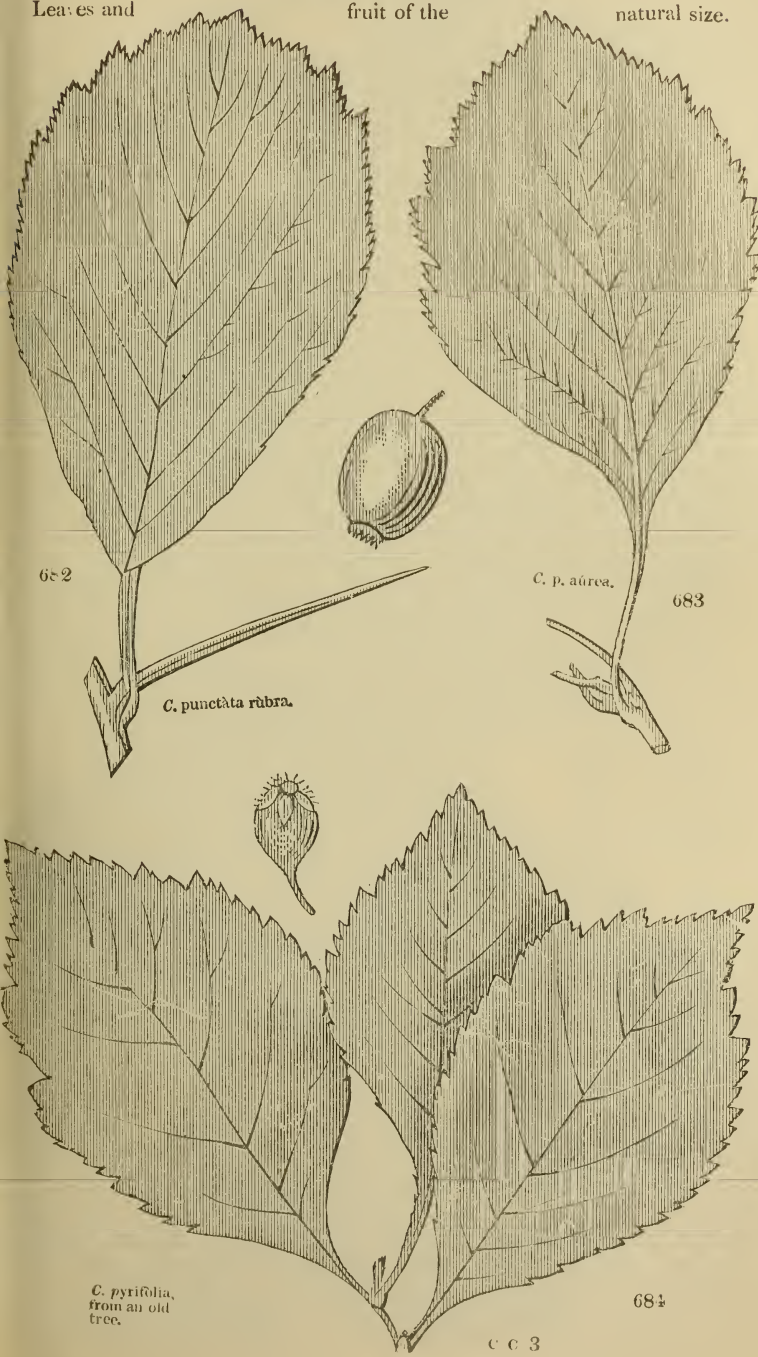
*Cratæ'gus glandulòsa*, and C. *g. subvillòsa*. The glandular Thorn, and the subvillose-*leaved* glandular Thorn.

Leaves and fruit of the natural size.



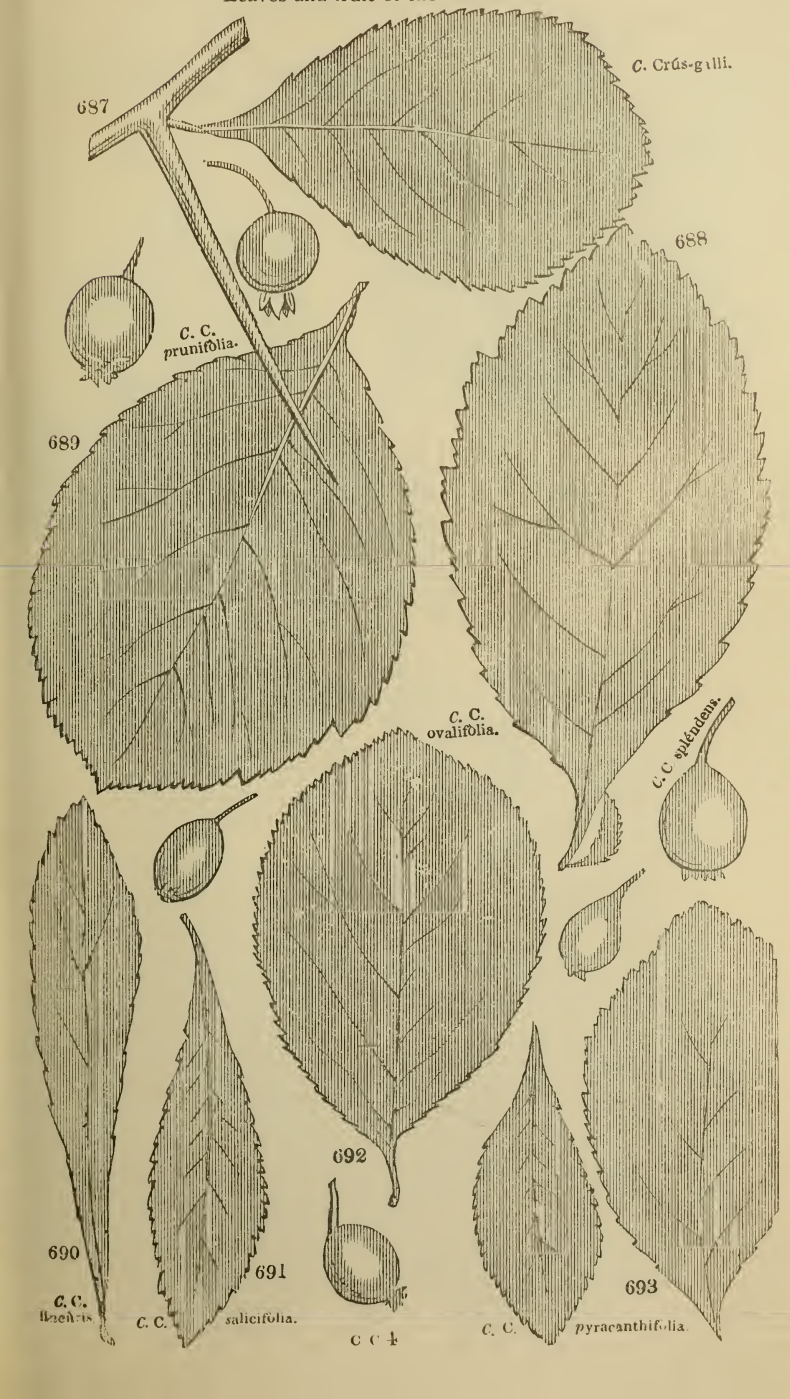
***Cratæ`gus punctàta***, and C. *pyrifòlia*. The dotted-*fruited* Thorn, and the Pear-leaved Thorn.

Leaves and fruit of the natural size.



*Cratæ'gus macracántha.* The long-spined Thorn.
Leaves and fruit of the natural size.

*Cratæ'gus Crús-gálli, et var.* The Cock's-spur Thorn, and its varieties. Leaves and fruit of the natural size.



*Cratæ`gus nìgra,* and C. *purpùrea.* The black-*fruited* Thorn, and the purple-*branched* Thorn.

Leaves and fruit of the natural size.

*Cratæ`gus purpùrea altàica*, and C. *Douglàsii*. The Altaic purple-*branched* Thorn, and Douglas's Thorn.

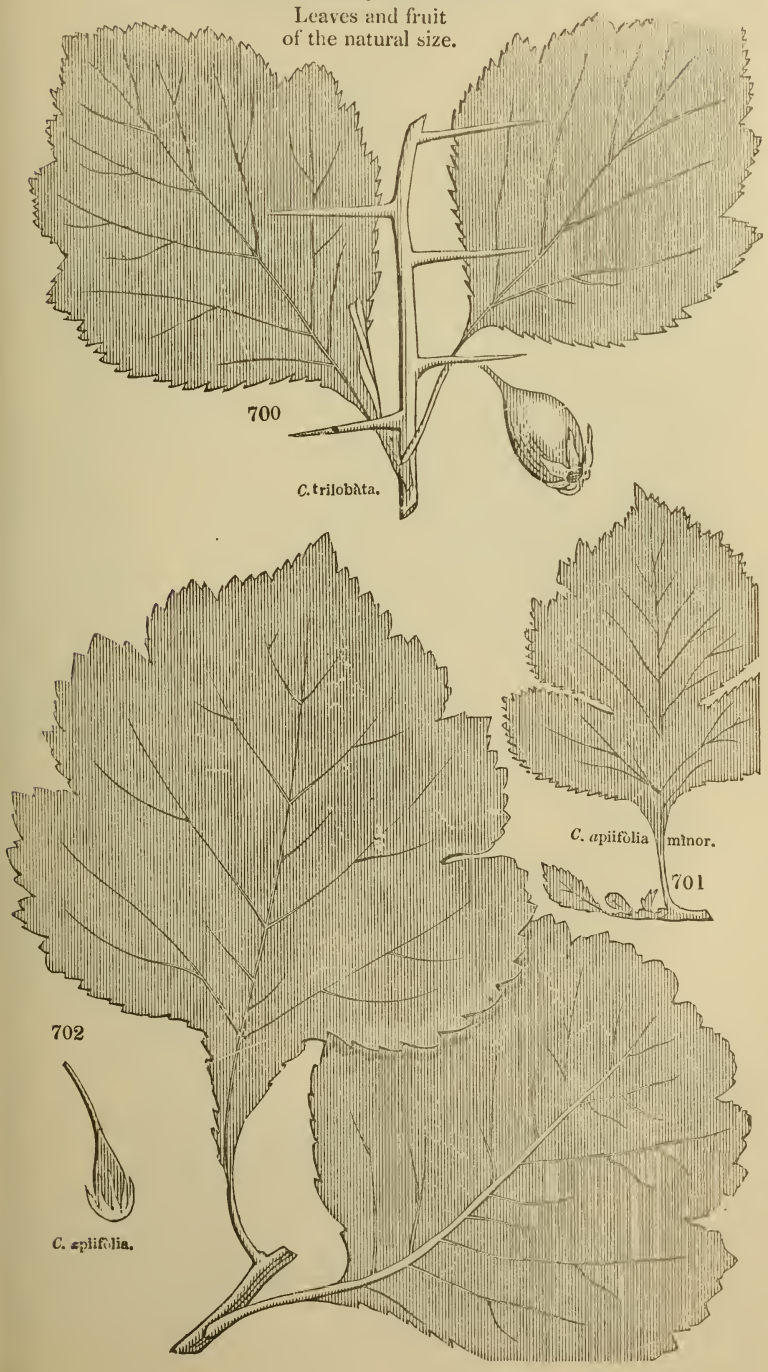
Leaves and fruit of the natural size.

*Cratæ'gus flàva*, and C. *lobàta*. The yellow-*fruited* Thorn, and the lobed-*leaved* Thorn.

Leaves and fruit of the natural size.

*Cratæ'gus trilobàta,* and C. *apiifòlia.* The three-lobed-*leaved* Thorn, and the Parsley-leaved Thorn.

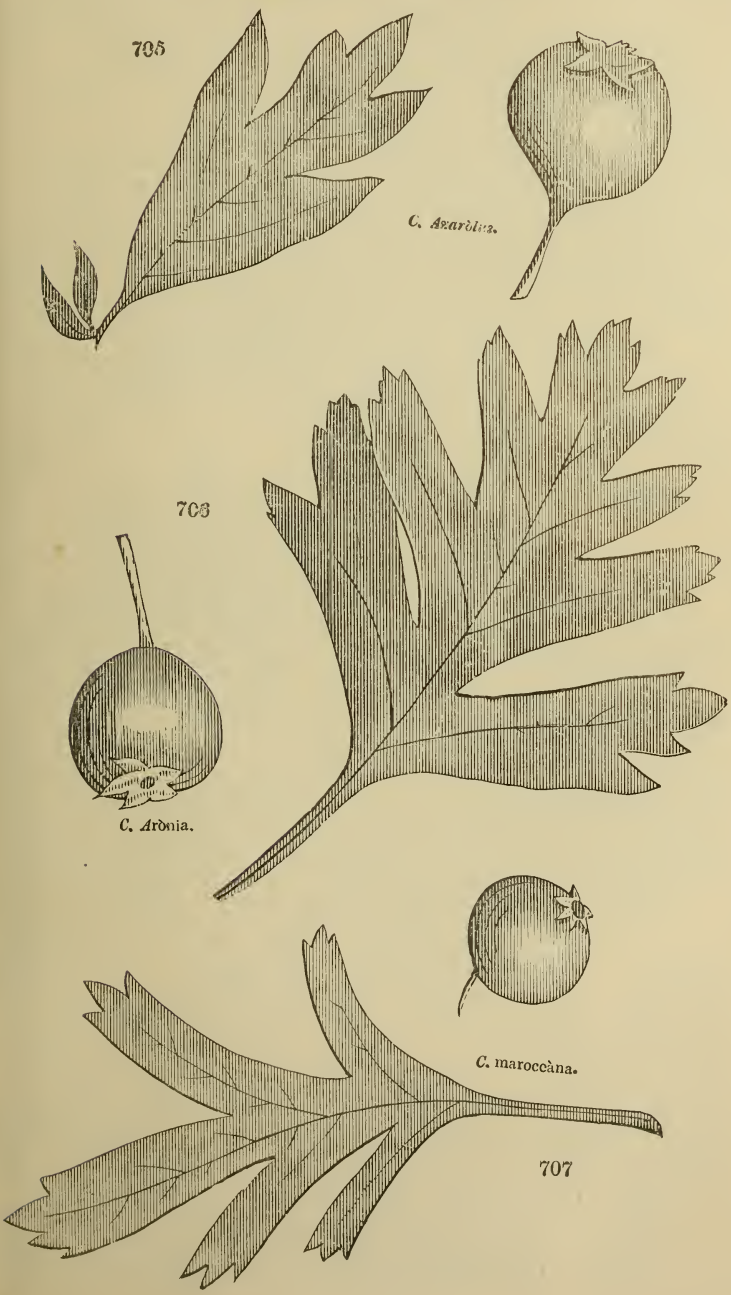
Leaves and fruit of the natural size.



*Cratæ'gus cordàta*, and C. *spathulàta*. The heart-*shaped-leaved* Thorn, and the spathula-*shaped-leaved* Thorn.

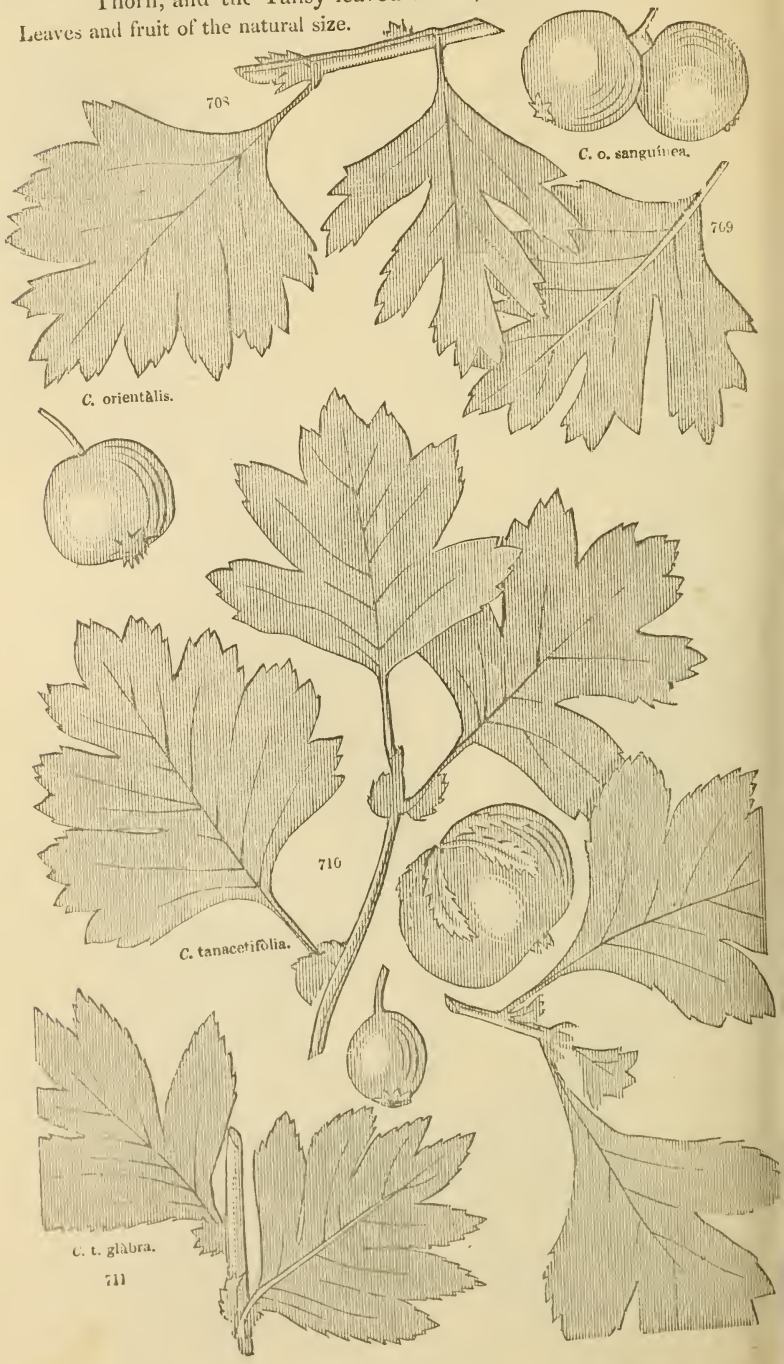
Leaves and fruit of the natural size.

*Cratæ'gus* Azaròlus, C. *Arònia*, and C. *maroccàna*. The Azarole Thorn, the Aronia Thorn, and the Morocco Thorn.
Leaves and fruit of the natural size.



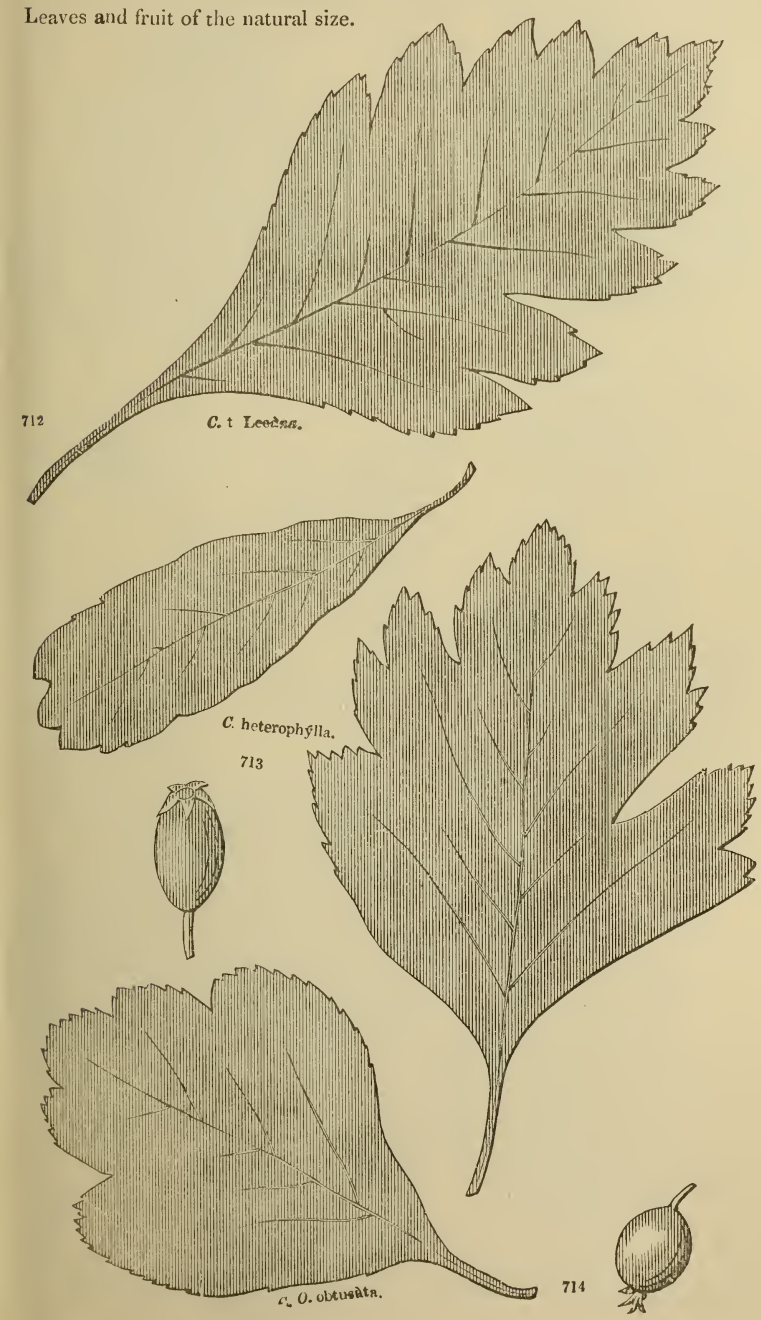
*Cratæ'gus orientàlis, et var.*, and C. *tanacetifòlia, et var.* The Eastern Thorn, and the Tansy-leaved Thorn, with Varieties.

Leaves and fruit of the natural size.



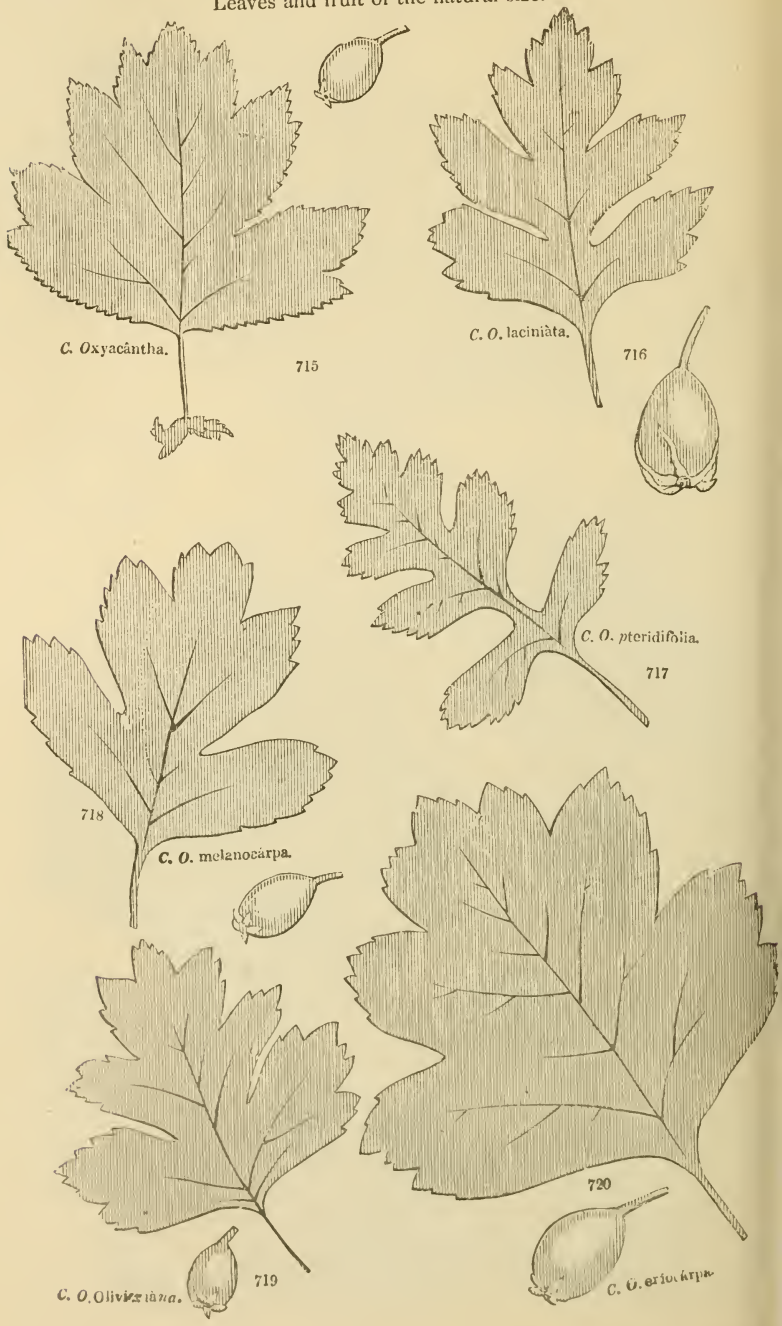
*Cratæ'gus tanacetifòlia Leeàna*, C. *heterophýlla*, and C. *Oxyacántha obtusàta*. Lee's Tansy-leaved Thorn, the various-leaved Thorn, and the obtuse-*leaved* Hawthorn.

Leaves and fruit of the natural size.

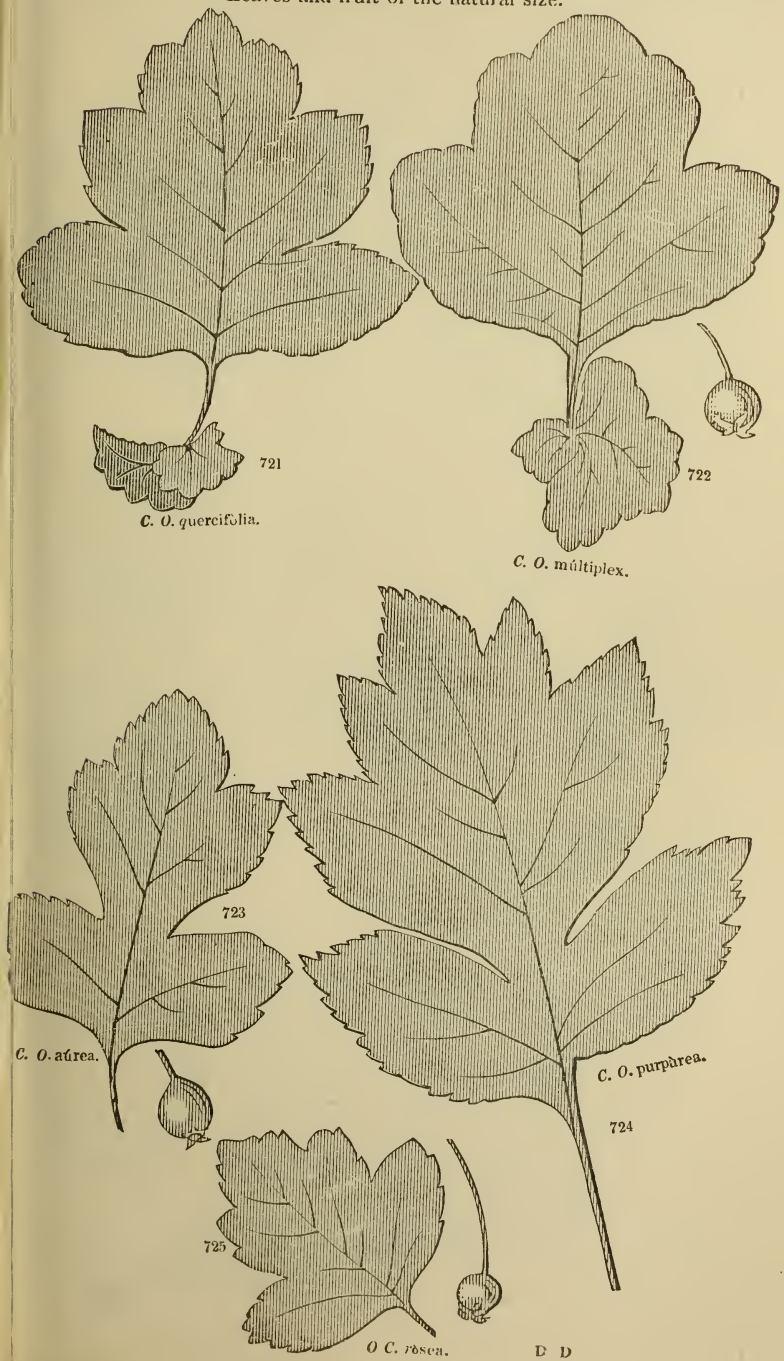


*Cratæ'gus Oxyacántha, et var.* The *common* Hawthorn, and Five of its Varieties.

Leaves and fruit of the natural size.

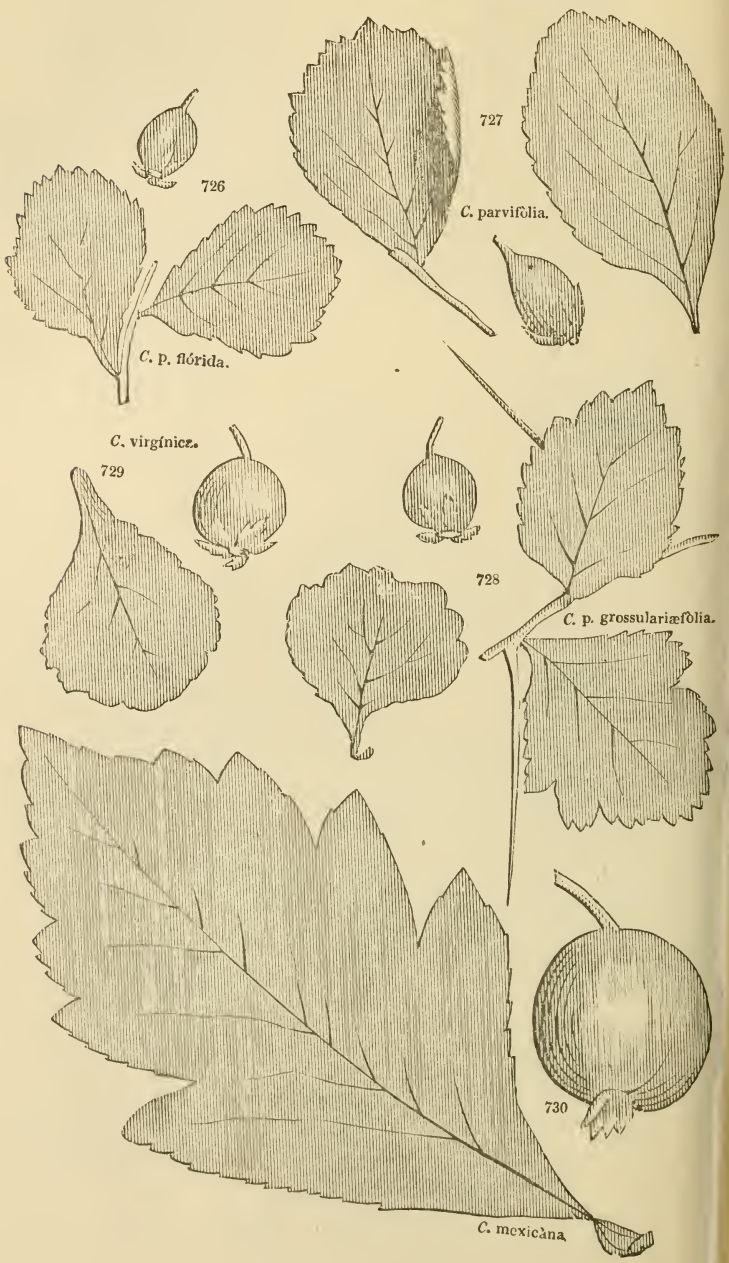


*Cratæ'gus Oxyacántha var* Five Varieties of the Hawthorn.
Leaves and fruit of the natural size.



*Cratæ`gus parvifòlia*, C. *p. flórida*, C. *p. grossulariæfòlia*, C. *virgínica*, C. *mexicàna*. The small-leaved Thorn, the Florida Thorn, the Gooseberry-leaved Thorn, the Virginian Thorn, and the Mexican Thorn.

Leaves and fruit of the natural size.



## Genus XV.

STRANVÆ'S*IA* Lindl. The Stranvæ'sia. *Lin. Syst.* Icosándria Di-Pentagýnia.

*Identification.* Lindl. in Bot. Reg.
*Synonyme.* Cratæ'gus in part.
*Derivation.* In honour of the Hon. *W. T. H. Fox Strangways*, F.H.S., &c., a botanical amateur, who possesses a rich collection.

*Gen. Char. Calyx* 5-toothed. *Petals* 5, concave, sessile, spreading, villous at the base. *Stamens* 20, spreading. *Ovary* villous, superior, 5-celled; cells containing 2 ovules. *Fruit* spherical, enclosed by the calyx, containing a superior, 5-valved, hard, brittle, dehiscent capsule. *Seeds* oblong. *Testa* cartilaginous. (*Lindl.*)

*Leaves* simple, alternate, stipulate, evergreen; lanceolate, serrated. *Flowers* corymbose. — An evergreen tree; native of the temperate parts of Asia; in Britain a rather tender shrub.

1. S. glauce'scens *Lindl.* The glaucous-*leaved* Stranvæsia.

*Identification.* Lindl. in Bot. Reg., t. 1956.
*Synonyme.* Cratæ'gus glaúca *Wall. Cat.* 673.
*Engravings.* Bot. Reg., t. 1956.; and our *figs.* 731. and 732.

731. Stranvæ'*sia* glaucéscens.

*Spec. Char., &c.* Leaves lanceolate, coriaceous, serrated, pointed at the base; midrib and nerves on the under side, as well as the young twigs, hairy. Corymbs somewhat woolly. Pedicels 3 or 4 times as long as the bud. (*Lindl.*) An evergreen shrub; in Nepal, a tree 20 ft. high. Introduced in 1828. Flowers white; July. Fruit small, yellowish red; ripe in October.

Somewhat tender when treated as a standard in the open garden but, when trained against a wall, forming a very handsome evergreen. Propagated by grafting on Cratæ'gus.

732 S. glaucéscens.

## Genus XVI.

HOTI'NIA *Lindl.* The Photinia. *Lin. Syst.* Icosándria Di-Pentagýnia.

*Identification.* Lindl. in Lin. Soc. Trans., 13. p. 103.; Dec. Prod., 2. p. 631.; Don's Mill., 2. p. 602.
*Synonyme.* Cratæ'gus sp. *L.*
*Derivation.* From *phōteinos*, shining; in allusion to the lucid surface of the leaves.

*Gen. Char. Calyx* 5-toothed. *Petals* reflexed. *Ovarium* semiadherent, villous, 2-celled. *Styles* 2, glabrous. *Pericarp* 2-celled, enclosed in the fleshy calyx. *Testa* cartilaginous. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, evergreen; quite entire, or serrated.

*Flowers* white, disposed in terminal corymbose panicles. *Fruit* small, smooth. — Evergreen trees; natives of Asia and America, requiring the same garden treatment as *C*ratæ'gus (on which all the species may be grafted), except that the species are somewhat more tender, and are best grown against a wall even in the climate of London.

* 1. P. SERRULA'TA *Lindl.* The serrulated-*leaved* Photinia.

*Identification.* Lindl. in Lin. Soc. Trans., 13. p. 103.; Dec. Prod., 2. p. 631.; and Don's Mill., 2. p. 602.
*Synonyme.* Cratæ'gus glàbra *Thunb. Fl. Jap.* 205., *Bot. Mag.*, *Lodd. Bot. Cab.*, *Colla Hort. Ripul.*
*Engravings.* Bot. Mag., t. 2105.; Bot. Cab., t. 248.; Colla Hort. Ripul., t. 36.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 733.

733. Photínia serrulàta.

*Spec. Char., &c.* Leaves oblong, acute serrulated. Pedicels longer than the calyx. Buds large, red. (*Dec. Prod.*) An evergreen shrub or low tree. Japan and China. Height 12 ft. to 15 ft. Introduced in 1804. Flowers white; April and May. Fruit ?; rarely produced in England.

The young shoots and leaves are remarkable for their deep red, or mahogany colour; and the decaying leaves exhibit this colour much more intensely, mixed with a fine yellow or scarlet. Altogether it forms a very splendid plant, when trained against a wall; or, in warm sheltered situations, as a standard. It is commonly grafted or budded on thorn stocks; and it also does well upon quince stocks. In the neighbourhood of London it flowers between the middle of April and the middle of May; but it has not yet produced fruit in England. The largest and oldest plants are at White Knights, where it was planted in 1804; and, in 1835, formed a large bush or tree, nearly 15 ft. high.

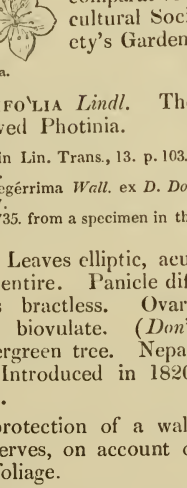
* 2. P. ARBUTIFO'LIA *Lindl.* The Arbutus-*leaved* Photinia.

*Identification.* Lindl. in Lin. Soc. Trans., 13. p. 103.; Dec. Prod., 2. p. 631.; Don's Mill., 2. p. 602
*Synonyme.* Cratæ'gus arbutifòlia *Ait. Hort. Kew.* ed. 2. vol. 3. p. 232.
*Engravings.* Bot. Reg., t. 491.; and our *fig.* 734.

734 P. arbutifòlia.

*Spec. Char., &c.* Leaves with the disk oblong-lanceolate, acute, distantly serrated, six times longer than the petiole, which is red. The panicle, in this species, is not corymbose. (*Dec. Prod.*) An evergreen shrub or low tree. California. Height 10 ft. to 20 ft. Introduced in 1796. Flowers white; July and August. Fruit ?.

A very desirable evergreen for walls, hitherto comparatively neglected in British gardens. Horticultural Society's Garden.



735. P. integrifòlia.

♀ 3. P. INTEGRIFO'LIA *Lindl.* The entire-leaved Photinia.

*Identification.* Lindl. in Lin. Trans., 13. p. 103.; Don's Mill., 2. p. 602.
*Synonyme.* *Pyrus integérrima* *Wall.* ex *D. Don Prod. Fl. Nep.* p. 237.
*Engraving.* Our *fig.* 735. from a specimen in the Linnæan herbarium.

*Spec. Char., &c.* Leaves elliptic, acuminated, quite entire. Panicle diffuse. Pedicels bractless. Ovary 3-celled; cells biovulate. (*Don's Mill.*) An evergreen tree. Nepal. Height 20 ft. Introduced in 1820. Flowers white ?.

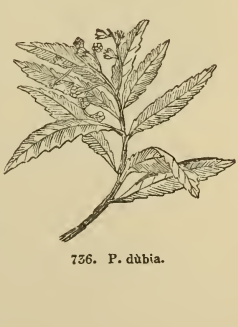
Requires the protection of a wall, which it well deserves, on account of the beauty of its foliage.

♀ 4. P. DU'BIA *Lindl.* The doubtful Photinia.

*Identification.* Lindl. in Lin. Trans., 13. p. 104.; Don's Mill., 2. p. 602.
*Synonymes.* *Méspilus* bengalénsis *Roxb.*; *M.* tinctòria *D. Don Prod. Fl. Nep.* 238.; *Cratæ'gus Shicòla* Ham. MSS.
*Engravings.* Lin. Trans., 13. t. 10.; and our *fig.* 736.

*Spec. Char., &c.* Leaves lanceolate, distantly serrated. Panicle corymbose, pilose. Fruit 2-celled. Seed 1, large, and clothed with a loose testa. Fruit sometimes 1-celled from abortion, and 2-seeded. (*Don's Mill.*) An evergreen tree. Nepal. Height 20 ft. Introduced in 1821. Flowers white ?.

It appears nearly allied to Raphiólepis. Hamilton states that the bark is used, in Nepal, to dye cotton red. Culture and management as in the preceding species.



736. P. dùbia.

## GENUS XVII.

COTONEA'STER *Med.* THE COTONEASTER. *Lin. Syst.* Icosándria Di-Pentagýnia.

*Identification.* Med. Gesch. Bot., 1793.; Lindl. in Lin. Soc. Trans., 13. p. 101.; Dec. Prod., 2. p. 632.; Don's Mill., 2. p. 603.
*Synonymes.* Méspilus sp. *Lin.*; Néflier cotonneux, *Fr.*; Quitten-Mispel, *Ger.*; Cotognastro, *Ital.*
*Derivation.* *Cotoneaster*, a sort of barbarous word signifying quince-like. The quince was called *Cotonea* by Pliny: and *aster*, a corruption of *ad instar*, is used occasionally to express similitude.

The genus, and C. frígida in particular, is not unlike the quince in its leaves. (*Lindley* in *Bot. Reg.* t. 1187. and 1229.)

*Gen. Char.* *Flowers* polygamous from abortion. *Calyx* turbinate, bluntly 5-toothed. *Petals* short, erect. *Stamens* length of the teeth of the calyx. *Styles* glabrous, shorter than the stamens. *Carpels* 2—3, parietal, biovulate, enclosed in the calyx. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate or exstipulate, deciduous or evergreen; generally woolly beneath. *Flowers* in corymbs, lateral, spreading, furnished with deciduous subulate bracteas. *Petals* small, permanent.—Shrubs or low trees. Natives of Europe, America, and Asia.

The species are very desirable garden shrubs or low trees, from the beauty of their foliage, their flowers, and their fruit; the fruit of C. frígida and C. affìnis, in particular, being produced in great abundance, and being of an intense scarlet colour, have a very splendid appearance, and remain on the trees the greater part of the winter. The cotoneasters are all readily propagated by seeds, cuttings, layers, or grafting on C. vulgàris, on the common quince, or on the hawthorn. Though the greater part of the species are natives of Asia, yet in Britain they are found to be as hardy as if they were indigenous to the North of Europe, more especially those of them that are true evergreens. Not one of them was killed by the winter of 1837–8 in the Hort. Soc. Garden.

## § i. *Leaves deciduous. Shrubs.*

### 1. C. VULGA'RIS *Lindl.* The common Cotoneaster.

*Identification.* Lindl. in Lin. Soc. Trans., 13. p. 101.; Dec. Prod., 2. p. 632.; Don's Mill., 2. p. 603.
*Synonymes.* Méspilus Cotoneáster *Lin. Sp.* 686., *Œd. Fl. Dan.* t. 112.; Néflier cotonneux, *Fr.*; Quitten-Mispel, *Ger.*; Salciagnolo, *Ital.*
*Engravings.* Œd. Fl. Dan., t. 112.; Eng. Bot. Suppl., t. 2713.; and our *fig.* 737.

737. C. vulgàris.

*Spec. Char., &c.* Leaves ovate, rounded at the base. Peduncles and calyxes glabrous. (*Dec. Prod.*) A deciduous shrub. Europe and Siberia, on the sunny parts of subalpine hills. Height 2 ft. to 3 ft. in a wild state; in cultivation 4 ft. to 5 ft. Cultivated in 1656. Flowers white, slightly tinged with pink; April and May. Fruit red or black; ripe in July and August.

*Varieties.* The following three forms of this species are to be met with, both in a wild state, and in gardens: —

- *C. v.* 1 *erythrocárpa* Led. Fl. Alt. ii. p. 219. has the fruit red when ripe.
- *C. v.* 2 *melanocárpa* Led., *M*éspilus Cotoneáster *Pall. Fl. Ross.* p. 30. t. 14., *M.* melanocárpa *Fisch.*, C. melanocárpa *Lod. Cat.*, has the fruit black when ripe.
- *C. v.* 3 *depréssa* Fries Nov. Suec. p. 9., Dec. Prod. ii. p. 632., is rather spiny, with lanceolate acutish leaves, and fruit including 4 carpels. It is a native of the rocks of Sweden near Warberg.

### 2. C. (v.) TOMENTO'SA *Lindl.* The tomentose, *or woolly,* Cotoneaster.

*Identification.* Lindl. in Lin. Soc. Trans., 13. p. 101.; Dec. Prod., 2. p 632.; Don's Mill., 2. p. 603.
*Synonymes.* Méspilus tomentòsa *Willd. Sp.* 2. p. 1012., not Lam.; *M.* criocárpa *Dec. Fl. Fr. Synops.* and *Suppl.* No. 3691.
*Engraving.* Our *fig.* 738. from a specimen in the British Museum

738. C. (v.) tomentòsa.

*Spec. Char., &c.* Leaves elliptical, obtuse at both ends. Peduncles and calyxes woolly. (*Dec. Prod.*) A deciduous shrub, like the preceding species, of which it appears to us to be only a variety, found wild on the rocks

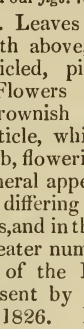
of Jura, and in other parts of the Alps of Switzerland; and in cultivation in British gardens since 1759.

3. C. (v.) LAXIFLORA *Jacq.* The loose-flowered Cotoneaster

*Identification.* Jacq. ex Lindl. Bot. Reg., t. 1305; Don's Mill., 2. p. 604.
*Engravings.* Bot. Reg., t. 1305.; and our *figs.* 739. and 740.

739. C. (v.) laxiflòra.

*Spec. Char., &c.* Leaves oblong, obtuse at both ends, smooth above, and woolly beneath. Cymes panicled, pilose. Calyxes quite smooth. Flowers pink. (*Don's Mill.*) Branches brownish purple, with an ash-coloured cuticle, which peels off. A deciduous shrub, flowering in April, and having the same general appearance and habit as C. vulgàris, but differing from it in having large loose racemes, and in the colour of its flowers, and their greater number. It was raised in the Garden of the Horticultural Society, from seeds sent by Professor Jacquin of Vienna, in 1826. Its native country is unknown.


740. C. (v.) laxiflòra.

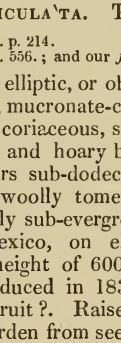
*Variety.*

C. (v.) *l.* 2 *uniflòra* Fischer.—Flowers solitary. Horticultural Society's Garden.

4. C. DENTICULATA. The toothed-leaved Cotoneaster.

*Identification.* H. et B., vol. vi. p. 214.
*Engravings.* H. et B., vol. vi. t. 556.; and our *fig.* 741.

*Spec. Char., &c.* Leaves elliptic, or obovate-elliptic, rounded on both sides, mucronate-cuspidate, denticulate at the apex, coriaceous, smooth above, tomentose, pubescent and hoary beneath. Corymbs simple. Flowers sub-dodecandrous, with 1—2 stigmas. Calyx woolly tomentose. (*H. et B.*) A shrub, apparently sub-evergreen, and very like *C.* vulgàris. Mexico, on elevated plains near Actopa, at the height of 6000 ft. Height ? 5 ft. to 6 ft. Introduced in 1839. Flowers white; September. Fruit ?. Raised in the Horticultural Society's Garden from seeds sent home by M. Hartweg.


741. C. denticulàta.

## § ii. *Sub-evergreen or deciduous. Tall Shrubs or low Trees.*

5. C. FRIGIDA *Wall.* The frigid Cotoneaster

*Identification.* Wall. ex Lindl. Bot. Reg., t. 1229.; and Don's Mill., 2. p. 604.
*Synonyme.* Pyrus *Nùssia* Ham. in Prod. Fl. Nep. p. 237., Dec. Prod. 2. p. 634.
*Engravings.* Bot. Reg., t. 1229.; the plate of this species in Arb. Brit., vol. vi.; and our *fig.* 742.

*Spec. Char., &c.* Branchlets woolly. Leaves elliptical, mucronate, coriaceous, crenulated, glabrous, woolly beneath when young. Corymbs paniculate, terminal, white, and woolly. Pomes spherical. (*Dec. Prod.*) A sub-evergreen shrub or low tree. Nepal, on the higher mountains of the northern region. Height 10 ft. to 20 ft. Introduced in 1824. Flowers of a snowy white, produced in great abundance; April and May. Fruit crimson, or bright red; ripe in September, and generally remaining on the trees great part of the winter.

A remarkably robust-growing, sub-evergreen, low tree, producing shoots 3 or 4 feet long every season, when young; and, in 3 or 4 years from the seed, becoming very prolific in flowers and fruit. As the fruit, with the greater part

742. C. frígida.

of the leaves, remains on all the winter, the tree makes a splendid appearance at that season; and, in sheltered situations, in the neighbourhood of London, it may be considered as an evergreen. It is very hardy; the specific name of frígida being given to it on account of the coldness of the locality in which it was found. It is propagated by grafting on the common hawthorn.

♈ ♀ 6. C. (F.) AFFI'NIS *Lindl.* The related (to C. frígida) Cotoneaster.

743 C. (f.) affi'nis.

*Identification.* Lindl. in Lin. Soc. Trans., 13. p. 101.; Dec. Prod., 2. p. 632.; and Don's Mill., 2. p. 603.
*Synonymes.* *Méspilus integérrima Hamilt. MSS.*; *M.* affìnis *D. Don Prod. Fl. Nep.* 238.; ? C kumàna in Lodd. collection.
*Engravings.* The plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 743.

*Spec. Char., &c.* Leaves ovate, with a small mucro at the tip, and tapered at the base. Peduncles and calyxes woolly. (*Dec. Prod.*) A sub-evergreen shrub or low tree. Nepal, at Chittong, in the lower country. Height 10 ft. to 20 ft. Introduced in 1828. Flowers white; April and May. Fruit bright red, or deep crimson; ripe in September, and remaining on the trees great part of the winter.

A robust shrub or low tree, in general habit and appearance so like the preceding sort, as to induce us to think that they are only different forms of the same species. They are, however, different in foliage, and on that account worth keeping distinct.

♆ ♀ 7. C. ACUMINA`TA *Lindl.* The acuminated-*leaved* Cotoneaster.

*Identification.* Lindl. in Lin. Soc. Trans., 13. p. 101.; Dec. Prod., 2. p. 632.; Don's Mill., 2. p. 603
*Synonyme.* Méspilus acuminàta *Lodd. Bot. Cab.* t. 919.
*Engravings.* Lodd. Bot. Cab., t. 919.; Lin. Soc. Trans., 13. t. 9.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 744.

744. C. acuminàta.

*Spec. Char., &c.* Leaves ovate, acuminated, rather pilose on both surfaces. Peduncles glabrous, 1—2, rather reflexed, shorter than those of C. vulgàris, C. tomentòsa, or C. affi'nis. Calyxes glabrous. (*Dec. Prod.*) A sub-evergreen shrub or low tree. Nepal. Height 10 ft. to 15 ft. Introduced in 1820. Flowers white; April and May. Fruit scarlet; ripe in September, and remaining on the plants all the winter.

A vigorous-growing, fastigiate, leathery-leaved shrub, or very handsome sub-evergreen low tree; very distinct, and a most desirable species.

♆ 8. C. NUMMULA`RIA *Lindl.* The money-like-*leaved* Cotoneaster.

*Identification.* Lindl. in Hort. Trans., 6. p. 396.
*Synonymes.* C. ellìptica *Hort.*; Eriobôtrya ellìptica *Lindl.*; *Méspilus Cuìle* Hort.; ? C. læ'vis in Lodd. collection.
*Derivation.* Probably from the roundness of the leaf, resembling the general form of coins.
*Engravings.* The plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 745.

745. C. nummulária.

*Spec. Char., &c.* Disk of leaf flat, orbicular, or elliptical, ending in a mucro, in some instances emarginate. Petiole of about the length of the stipules, which are linear-lanceolate, membranous, and soon fall off. Bark, buds, flower buds, stipules, petiole, the under surface of the disk of the leaf, and part of the upper surface of the midrib, tomentosely hairy, while in a young state; the bark, petioles, midrib on its upper surface, and calyx, become glabrous when old. Flowers in axillary cymes, few in a cyme. Style and carpel, which has a bony shell, mostly solitary. Erect, branched in a spreading manner; branchlets straight, slender. An elegant low sub-evergreen tree. Nepal, in the mountainous region. Height 10 ft. to 15 ft. Introduced in 1824. Flowers white; April and May. Berries numerous, black; ripe in September.

A very handsome species, distinguished at first sight from the others by its spreading habit of growth and smaller leaves.

## § iii. *Leaves evergreen, leathery. Low Shrubs, with prostrate Branches; Trailers, but not properly Creepers.*

### ♃ 9. C. ROTUNDIFO'LIA *Wall.* The round-leaved Cotoneaster.

*Identification.* Wall. Cat.; Lindl. Bot. Reg., 1229.
*Synonymes.* C. microphýlla β U'va-úrsi *Lindl. Bot. Reg.* t. 1187.; C. U'va-úrsi *Hort.*; the Bearberry-leaved Nepal Cotoneaster.
*Engravings.* Bot. Reg., t. 1187.; and our *figs.* 746. and 747.

746. C. rotundifòlia.

*Spec. Char., &c.* Leaves roundish, pilose beneath, evergreen. Peduncles 1-flowered. Producing its white flowers in April and May. (*Don's Mill.*) An evergreen shrub. Nepal, on mountains. Height 3 ft. to 4 ft. Introduced in 1825. Flowers white, with the backs of the petals often

747. C. rotundifòlia.

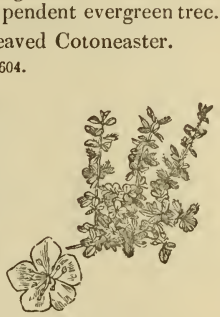
pinkish; April and May. Fruit bright scarlet; ripe in August, and remaining on all the winter.

A most desirable shrub for a small garden, for clothing a naked wall, covering rockwork, or grafting standard high, so as to form a pendent evergreen tree.

10. C. (R.) MICROPHY'LLA *Wall.* The small-leaved Cotoneaster.

*Identification.* Wall. ex Lindl. Bot. Reg., t. 1114.; Don's Mill., 2. p. 604.
*Engravings.* Bot. Reg., t. 1114.; and our *fig.* 748.

*Spec. Char., &c.* Leaves oblong, obtuse, pubescent beneath, evergreen. Peduncles usually 1-flowered. (*Don's Mill.*) A prostrate evergreen shrub, closely resembling the preceding species, and in our opinion only a variety of it. Nepal. Height 2 ft. to 3 ft. Introduced in 1824. Flowers white; May and June. Berries bright scarlet; ripe in August, and remaining on all the winter.

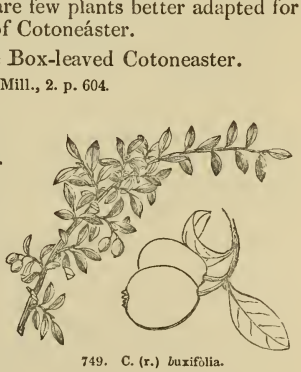

748. C. (r.) microphýlla

It is exceedingly hardy, and forms a fine plant on rockwork, or on a lawn, where it has room to extend itself. A plant of C. microphýlla, at High Clere, of about 10 years' growth, was, in 1835, 6 ft. high, and formed a dense bush, covering a space 21 ft. in diameter. Another, at Redleaf, was, in 1837, nearly as large. Grafted standard high on the thorn, or any of its congeners, this shrub forms a singular and beautiful evergreen drooping tree: or it will cover a naked wall nearly as rapidly as ivy; and it possesses a decided advantage over that plant, and particularly over the variety called the giant ivy, in its shoots, which may be prevented from extending many inches from the face of the wall, and, consequently, being not likely to injure the plants growing near it. Were the practice of training trees and shrubs in architectural or sculptural shapes again to come into fashion, there are few plants better adapted for the purpose than this and the preceding sort of Cotoneáster.

11. C. (R.) BUXIFO'LIA *Wall.* The Box-leaved Cotoneaster.

*Identification.* Wall. ex Lindl. Bot. Reg., t. 1229.; Don's Mill., 2. p. 604.
*Engraving.* Our *fig.* 749. from a living specimen.

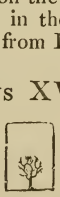
*Spec. Char., &c.* Leaves ovate, woolly beneath, evergreen. Peduncles 2—3-flowered, woolly. Flowers white. (*Don's Mill.*) A native of Neelgherry; introduced in 1824; and apparently a variety of C. rotundifòlia, from which it differs in having the peduncles 2- and 3-flowered, but scarcely in any thing else.


749. C. (r.) buxifòlia.

*Variety.*

C. (*b.*) 2 *marginàta*, C. marginàta *Lindl.*, has rather larger leaves, which are covered thickly on the under side and margin with a dense white tomentum. Raised in the Horticultural Society's Garden in 1838, from seeds received from Dr. Falconer of Saharunpore.

## GENUS XVIII.



*AMELA'NCHIER* Med. THE AMELANCHIER. *Lin. Syst.* Icosándria Di-Pentagýnia.

*Identification.* Med. Gesch., 1793.; Lindl. in Lin. Soc. Trans, 13. p. 100.; Dec. Prod., 2. p. 632.; Don's Mill., 2. p. 604.

*Synonymes.* Méspilus *L.*; *Pŷrus W.*; *Aròn*ia *Pers.*
*Derivation.* According to Clusius, *Amelancier* is the old Savoy name for *A.* vulgàris. (*E. of Pl.*) *Amelancier* is the Savoy name for the medlar.

*Gen. Char.* *Calyx* 5-cleft. *Petals* lanceolate. *Stamens* rather shorter than the calyx. *Ovarium* of 10-cells, or of 5 bipartite ones. *Ovula* 10, solitary in the partitions of the cells. *Styles* 5, joined together a little at the base. *Pome*, when mature, 3—5 celled. *Seeds* 3—5; endocarp cartilaginous. (*Don's Mill.*)

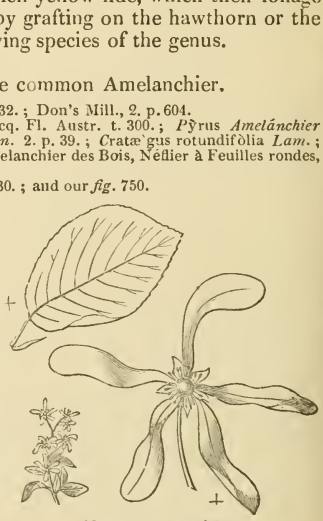
*Leaves* simple, alternate, stipulate, deciduous; serrated. *Flowers* white, in racemes. *Bracteas* linear lanceolate, deciduous. — Small trees, natives of Europe, America, or Asia.

In British gardens, they are cultivated for their flowers, which are white, abundant, showy, and produced early in the season; for their fruit, which ripens in June; and for the deep red, or rich yellow hue, which their foliage assumes in autumn. They are propagated by grafting on the hawthorn or the quince; or the weaker on the stronger-growing species of the genus.

### ♃ 1. *A.* VULGA'RIS *Mœnch.* The common Amelanchier.

*Identification.* Mœnch Meth., 682.; Dec. Prod., 2. p. 632.; Don's Mill., 2. p. 604.
*Synonymes.* Méspilus *Amelánchier* Lin. Sp. 685., Jacq. Fl. Austr. t. 300.; *Pŷrus Amelánchier* Willd. Sp. 2. p. 1015.; *Aròn*ia rotundifòlia *Pers. Syn.* 2. p. 39.; Cratæ'gus rotundifòlia *Lam.*; Sórbus *Amelánchier* Crantz; Alisier Amelanchier, Amelanchier des Bois, Néflier à Feuilles rondes, *Fr.*; Felsenbirne, *Ger.*; Pero cervino, *Ital.*
*Engravings.* Jacq. Fl. Austr., t. 300.; Bot. Mag., t. 2430.; and our *fig.* 750.

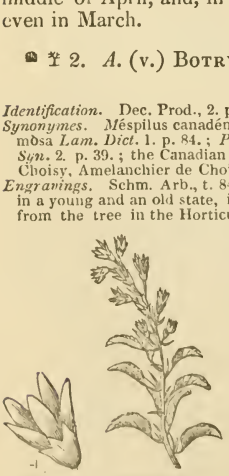
*Spec. Char., &c.* Leaves roundish-oval, bluntish, downy beneath, afterwards glabrous. Fruit dark blue. (*Dec. Prod.*) A deciduous low tree. Continent of Europe, the Alps, Pyrenees, and at Fontainbleau in France. Height 15 ft. to 20 ft. Introduced in 1596. Flowers white; March and April. Fruit black, soft and eatable; ripe in July. Decaying leaves bright yellow.


750. *Amelánchier* vulgàris.

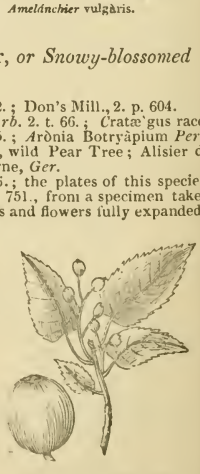
A most desirable low tree, on account of its early and numerous flowers, which cover the tree like a white sheet, about the middle of April, and, in very mild seasons, even in March.

### ♃ 2. *A.* (v.) BOTRYA'PIUM *Dec.* The Grape-Pear, *or Snowy-blossomed* Amelanchier.

*Identification.* Dec. Prod., 2. p. 632.; Hook. Fl. Bor. Amer., 1. p. 202.; Don's Mill., 2. p. 604.
*Synonymes.* Méspilus canadénsis *Lin. Sp.* 185.; *M.* arbòrea *Michx. Arb.* 2. t. 66.; Cratæ'gus racemòsa *Lam. Dict.* 1. p. 84.; *Pŷrus* Botryàpium *Lin. fil. Suppl.* p. 255.; *Aròn*ia Botryàpium *Pers. Syn.* 2. p. 39.; the Canadian Medlar, Snowy Mespilus, June Berry, wild Pear Tree; Alisier de Choisy, Amelanchier de Choisy, Alisier à Grappes, *Fr.*; Traubenbirne, *Ger.*
*Engravings.* Schm. Arb., t. 84.; Willd. Abbild., t. 79.; Krause, t. 56.; the plates of this species, in a young and an old state, in Arb. Brit., 1st edit., vol. vi.; our *fig.* 751., from a specimen taken from the tree in the Horticultural Society's Garden, with the leaves and flowers fully expanded; and *figs.* 752. and 753., copied from Michaux's *North American Sylva*; *fig.* 751. showing the plant in spring before the flowers are fully opened; and *fig.* 752. showing the plant in fruit. Both differ in some respects from *fig.* 753. See Sir W. J. Hooker's remarks under *A.* ovàlis, No. 4.


751. *A* (v.) Botryàpium.

*Spec. Char., &c.* Leaves oblong-elliptical, cuspidate, somewhat villous when young, afterwards glabrous. (*Dec. Prod.*) A deciduous shrub or low tree, closely


752. *A.* (v.) Botryàpium.

resembling the preceding species; and by some botanists considered as only a variety of it. America. Height in America 30 ft. to 40 ft., with a trunk 10 in. to 12 in. in diameter; in England 20 ft. to 30 ft. Introduced in 1746. Flowers white; April. Fruit purple, agreeable to eat; ripe in the beginning of June. Decaying leaves rich yellow.

A very ornamental tree, from its profusion of blossoms early in April, and from its rich autumnal foliage; and even the fruit is not altogether to be despised, either eaten by itself, or in tarts, pies, and puddings. The wood is white, and it exhibits no difference between the heart and the sap: it is longitudinally traversed by small bright red vessels, which intersect each other, and run together; a physiological peculiarity which, Michaux observes, occurs also in the red birch.

753. *A.* (v.) Botryàpium.

♃ ♈ 3. *A.* (v.) SANGUI'NEA *Dec.* The blood-coloured Amelanchier.

*Identification.* Dec. Prod., 2. p. 633.; Lindl. in Bot. Reg., t. 1171.; Hook. Fl. Bor. Amer., 1. p. 203.; Don's Mill., 2. p. 604.
*Synonymes.* *Pŷrus* sanguínea *Pursh Fl. Amer. Sept.* 1. p. 340.; *Aròn*ia sanguínea *Nutt.*; *Méspilus* canadénsis γ rotundifòlia *Michaux Fl. Bor. Amer.* 1. p. 391.
*Engravings.* Bot. Reg., t. 1171.; and our *figs.* 754. and 755.

754. *A.* (v.) sanguínea.

755. *A.* (v.) sanguínea.

*Spec. Char., &c.* Leaves oval, obtuse at both ends, mucronate, finely serrated, somewhat heart-shaped at the base. Flowers few in a raceme. Calyx glabrous. Petals linear, obtuse. Fruit eatable. (*Dec. Prod.*) A deciduous tree or large shrub. Hudson's Bay. Height 10 ft. to 20 ft. Introduced in 1824. Flowers white; April. Fruit dark purple, full of blood-coloured juice; ripe in July. Decaying leaves rich yellow.

This plant differs from *A.* (v.) Botryàpium in the fewer flowers, much shorter raceme, and shorter, broader, and more ovate petals; in the young leaves being perfectly destitute of pubescence, and the head somewhat fastigiate.

♃ ♈ 4. *A.* (v.) OVA'LIS *Dec.* The oval-*lvd* Amelanchier.

*Identification.* Dec. Prod., 2. p. 632.; Don's Mill., 2. p. 604.
*Synonymes.* Cratæ'gus spicàta *Lam. Dict.* 1. p. 84. ?; *Méspilus* *Amelánchier* Walt. Car. p. 184.; *A.* parvifòra *Doug. MS.*; *M.* canadénsis var. α ovàlis *Michx. Am.* 1. p. 291.; *Pŷrus* ovàlis *Willd. Sp.* 2. p. 1014.; *Aròn*ia ovàlis *Pers. Syn.* 2. p. 240.; Amelanchier du Canada, Alisier à E'pi, *Fr.*; rundblättrige Birne, *Ger.*
*Engraving.* *Fig.* 756. from a living specimen.

*Spec. Char., &c.* Leaves roundish-elliptical, acute; when young, rather velvety beneath; when adult, glabrous. Raceme coarctate. Petals obovate. Calyx pubescent. (*Dec. Prod.*) A large deciduous shrub or low tree. North America, from Lake Huron to

756. *A.* (v.) ovàlis.

the Rocky Mountains. Height 10 ft. to 20 ft. Introduced in 1800. Flowers white; April. Fruit purple; ripe in July. Decaying leaves rich yellow.

*Varieties.*

A. (*v.*) *o.* 2 *subcordàta* Dec.; *A*rònia subcordàta *Raf.*; *M*àlus microcárpa *Raf.*—A native of mountains near New York. (*Dec. Prod.*)

A. (*v.*) *o.* 3 *semi-integrifòlia* Hook. Fl. Bor. Amer. p. 201.—Leaves for the most part separated at the apex. A native about the Grand Rapids, and at Fort Vancouver, on the Columbia.

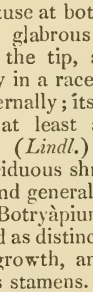
Sir Wm. J. Hooker is disposed to agree with Dr. Torrey, who suspects this to be only a variety of *A.* Botryàpium; and he adds that Michaux seems to have included *A.* Botryàpium and *A.* vulgàris under his *A.* canadénsis. The wood of *A.* ovàlis, according to Dr. Richardson, is prized by the Cree Indians for making arrows and pipe stems; and it is thence termed by the Canadian voyagers Bois de flèche. Its berries, which are about the size of a pea, are the finest fruit in the country; and are used by the Cree Indians both in a fresh and in a dried state. They "make excellent puddings, very little inferior to plum-pudding." (*Hook. Fl. Bor. Amer.*, i. p. 203.)

5. *A.* (v.) FLO'RIDA *Lindl.* The flowery Amelanchier.

*Identification.* Lindl. Bot. Reg., t. 1589.; Gard. Mag., vol. ix. p. 484.
*Engravings.* Bot. Reg., t. 1589.; and our *figs.* 758. to a scale of 2 in. to 1 ft., and *fig.* 757. of the natural size.

*Spec. Char., &c.* Leaves oblong, obtuse at both ends, coarsely serrate in the terminal portion, glabrous in every state. Bracteas and stipules feathery at the tip, soon falling off. Flowers in upright racemes, many in a raceme. Calyx glabrous externally; its segments longer than, or at least as long as, the stamens. (*Lindl.*) A handsome hardy deciduous shrub or low tree, in habit and general appearance like *A.* (v.) Botryàpium, but at once recognised as distinct by its fastigiate habit of growth, and by the shortness of its stamens. North America, on the north-west coast. Height 10 ft. to 20 ft. Introduced in 1826. Flowers white; May. Fruit purple; ripe in August. Decaying leaves rich yellow.

757. *A.* (v.) flórida.


758. *A.* (v.) flórida.

*Variety.*

A. (*v.*) *f.* 2 *parvifòlia*, the *A.* parvifòlia of the Horticultural Society's Garden, is of a dwarf habit, not growing above 3 or 4 feet high, and has smaller leaves.

The leaves somewhat resemble those of the hornbeam; the petals vary in length, some having measured more than $\frac{3}{4}$ of an inch. In general habit, it is somewhat more fastigiate than the other sorts, unless we except *A.* sanguínea, to which, Dr. Lindley observes, it is very near akin. Possibly a distinct species, but we doubt it.

## GENUS XIX.



*ME'SPILUS Lindl.* THE MEDLAR. *Lin. Syst.* Icosándria Di-Pentagýnia.

*Identification.* Lindl. in Lin. Trans., 13. p. 99.; Dec. Prod., 2. p. 633.; Don's Mill., 2. p. 604.
*Synonymes.* *M*éspilus sp. of Lin. and others; Mespilóphora sp. of Neck.; Neflier, *Fr.*; Mispel *Ger.*; Nespolo, *Ital.*
*Derivation.* From *mesos*, a half, and *pilos*, a bullet; fruit resembling half a bullet.

*Gen. Char.* *Calyx* 5-cleft, the segments foliaceous. *Petals* nearly orbicular. *Disk* large, full of honey. *Styles* 2—5, glabrous. *Pome* turbinate, open; 5-celled. *Endocarp* bony. (*Don's Mill.*)

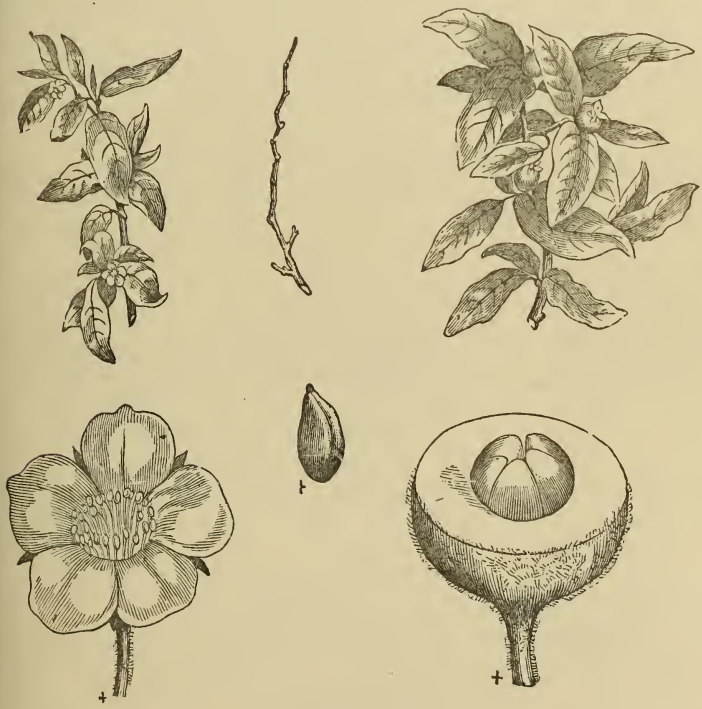
*Leaves* simple, alternate, stipulate, deciduous; lanceolate, serrulated. *Flowers* large, nearly sessile, usually solitary, white. *Bracteas* permanent.—Trees; in a wild state furnished with spines. Natives of Europe.

The first species is cultivated for its fruit, which is eatable, and the seeds of which are accounted anti-lithic. The second species is an ornamental shrub or low tree, of the general character of a *Cratæ'gus*. Both are propagated by grafting on the quince, the wild pear, or the common hawthorn; and both grow freely in any common soil, rather moist than dry.

### ♃ 1. *M.* GERMA'NICA *L.* The German, *or common*, Medlar.

*Identification.* Lin. Sp., 684.; Pall. Fl. Ross., t. 13. f. 1.; Dec. Prod., 2. p. 633.; Don's Mill., 2. p. 605.

*Engravings.* Pall. Fl. Ross., t. 13. f. 1.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 759.



759. *Méspilus germánica.*

*Spec. Char., &c.* Leaves lanceolate, tomentose beneath, undivided. Flowers solitary. (*Dec. Prod.*) A deciduous tree of the second rank. Europe and the West of Asia, in bushy places and woods; and said to be found, also, in Kent, Sussex, Surrey, and about Chester, in England; apparently in a truly wild state in Sussex. Cultivated in 1596. Flowers white; May and June. Fruit brown; ripe in October and November. Decaying leaves dark brown, or yellow.

*Varieties.* DeCandolle gives the following forms of this species, which may be considered as natural varieties: —

♀ M. g. 1 *sylvéstris* Mill. Dict. No. 1. — Spiny. Fruit small. It loses its spines in a state of cultivation.

♀ M. g. 2 *stricta* Dec., Ait. Hort. Kew. ii. p. 172., Dod. Pempt. 801. — Spineless. Leaves doubly serrated.

♀ M. g. 3 *diffusa* Dec., Ait. Hort. Kew. ii. p. 172., Du Ham. Arb. Fr. i. t. 3. — Thornless. Leaves nearly entire. Fruit, in many instances, abortive of seeds.

In the *Horticultural Society's Fruit Catalogue*, the following four cultivated sorts are given, which may be considered as artificial varieties : —

1. *Blake's large-fruited Medlar.*
2. *Dutch Medlar.* — Fruit the largest of any.
3. *Nottingham, or common, Medlar.* — Fruit obovate, middle size, and of the best quality : the only sort worth cultivating for its fruit in England.
4. *The stoneless Medlar.* — Fruit small, and of little merit.

The fruit of the medlar is not eaten till in a state of incipient decay, when it is very agreeable to some palates ; though it is, as Du Hamel observes, more *un fruit de fantaisie*, than one of utility. A number of trees of the different varieties may be seen in the orchard of the Horticultural Society's Garden, where they have taken very picturesque shapes.

### ♀ 2. *M.* Smi'thii Dec. Smith's Medlar.

*Identification.* Dec. Prod., 2. p. 633. ; Don's Mill., 2. p. 605.
*Synonymes.* *M.* grandiflòra *Smith Exot. Bot.* 1. p. 33. ; *M.* lobàta *Poir*, *Hook.* in *Bot. Mag.* t. 3342.
*Engravings.* Smith Exot. Bot., 1. t. 18. ; Bot. Mag., t. 3442. ; the plate of this species in Arb. Brit., 1st edit., vol. vi. ; and our *fig.* 760.

760. *Méspilus Smithii.*

*Spec. Char., &c.* Leaves oblong, elliptic, serrated, pubescent on the nerves beneath. Flowers usually solitary. (*Don's Mill.*) A deciduous tree with rambling irregular branches. Native country unknown. Cultivated in 1800. Height 15 ft. to 20 ft. Flowers white ; May and June. Fruit reddish brown ; ripe in October.

As hardy as the common medlar, and well deserving a place in ornamental plantations for the beauty of its flowers, which are produced in great profusion. The general aspect and habit of the tree are those of a *Cratæ'gus* ; and, indeed, it is by many persons considered as more properly belonging to that genus than to *Méspilus*.

## Genus XX.

PY`RUS *Lindl.* The Pear Tree. *Lin. Syst.* Icosándria Di-Pentagýnia.

*Identification.* Lindl. Lin. Soc. Tr., 13. p. 97.; Dec. Prod., 2. p. 633.; Don's Mill., 2. p. 605.
*Synonymes.* *Pỳrus Málus*, and *Sórbus*, *Tourn.*; *Pỳrus* and *Sórbus Lin.*; Pyróphorum and Apyróphorum *Neck.*

*Gen. Char.* *Calyx* with an urceolate tube, and a 5-lobed limb. *Petals* roundish. *Styles* usually 5, rarely 2 or 3. *Pome* closed, 5-celled. *Putamen* cartilaginous. *Seeds* 2 in each cell. *Testa* cartilaginous. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous, or sometimes snb-evergreen; entire, serrated, or pinnately divided. *Flowers* numerous, in cymes. *Bracteas* subulate, deciduous.

Low trees, and some shrubs; almost all deciduous; natives of Europe, Asia, and North America. Some of them are in great estimation throughout the world for their fruit; and others are cultivated chiefly for their flowers. Under the genus *Pỳrus*, botanists have lately united the Linnæan genera *Pỳrus* and *Sórbus*, together with several species formerly included under *Méspilus*, *Cratæ`gus*, and other genera.

Some of the species of *Pỳrus* are, and have been for ages, the most universally cultivated of all ligneous plants; the apple and the pear being highly esteemed fruits, both in the temperate and transition zones of both hemispheres. These, and all the species of the genus, are propagated by grafting on the wild varieties of each division.

### § 1. *Pyróphorum* Dec.

*Sect. Char.* Petals spreading, flat. Styles 5, distinct. Pome more or less top-shaped, or subglobose, without a concavity at the base. Pedicels simple, umbeled. Leaves simple, not glanded. (*Dec. Prod.*, ii. p. 633.) This section comprehends all the pears, properly so called.

#### ✝ 1. *P.* commu`nis *L.* The common Pear Tree.

*Identification.* Linn. Sp., 686.; Dec. Prod., 2. p. 633.; Don's Mill., 2. p. 605.
*Synonymes.* *P. A`chras Gærtn. Fruct.* 2. p. 44. t. 87.; *P. sylvéstris Dod. Pempt.* 800.; Pyráster *Ray Syn.* 452.; Poirier, *Fr.*; gemeine Birne, or Birnebaum, *Ger.*; Pero domestico, *Ital.*; Pera, *Span.*; and Gruschka, *Russian.*
*Engravings.* Blackw. Herb., t. 453.; Eng. Bot., t. 1784.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 761.

*Spec. Char., &c.* Branches and buds glabrous. Leaves ovate, serrated, glabrous upon both surfaces. Flowers corymbose. (*Dec. Prod.*) A deciduous tree of the middle size. Europe, in woods and waste places, from the east of Russia to the west of England. Height 30 ft. to 50 ft. rarely 70 ft. In cultivation from time immemorial. Flowers white, never tinged with pink like those of the apple; April and May. Fruit in a wild state green, turning yellowish in November. Decaying leaves rich yellow or reddish yellow.

*Varieties.* DeCandolle mentions two forms of the wild species, comparatively permanent; to which we have added several others, the result of cultivation, and which are more or less accidental or temporary. To these we might have subjoined a class of wild pears with hoary leaves, such as *P.* nivàlis, *P.* salicifòlia, &c., which we consider as varieties, or races, though commonly treated as species; but we have preferred giving them afterwards as distinct sorts.

✝ P. *c.* 1 A`*chras* Wallr. Sched. p. 213. — Spiny. Leaves woolly when young, but afterwards glabrous; the disk ovate, acuminate, entire; the petiole long. Tube of the calyx woolly when young, afterwards becoming glabrous. Pome with its basal part long.

761. *Pyrus communis.*

♈ P. *c.* 2 *Pyráster* Wallr. Sched. p. 214., Gærtn. Fr. t. 87. f. 2. — Spiny. Leaves roundish, acute, sharply serrated, glabrous even when young. Tube of the calyx, while young, glabrous. Pome rounded at the base.

♈ P. *c.* 3 *fòliis variegàtis* has variegated leaves.

♈ P. *c.* 4 *frúctu variegàto* has the skin of the fruit variegated with yellow and white.

♈ P. *c.* 5. *sanguinolénta, the sanguinole Pear*, has the flesh of the fruit red or reddish ; and, though small and gritty, is not bad to eat when ripe.

♈ P. *c.* 6 *flòre plèno*, Poire de l'Arménie *Bon. Jard.* p. 43., has double flowers.

♈ P. *c.* 7. *jáspida* ; Bon Chrétien à Bois jaspé *Bon. Jard.* edit. 1836, p. 424. ; has the bark of the wood striped with yellow.

♈ P. *c.* 8 *sativa* Dec. — Without spines. This is the cultivated variety, of which there are very numerous subvarieties in gardens. For these DeCandolle refers us to Miller's *Dictionary*, and to Du Hamel's *Des Arbres Fruitiers ;* but, at the present time, by far the most complete collection in the world, of cultivated pears, is in the garden of the London Horticultural Society ; and they are described in the *Fruit Catalogue* (edit. 1831) of that body. From this catalogue Mr. Thompson has made for us the following selection of sorts which are at once deserving of culture as ornamental trees, and as producing fruit of first-rate excellence.

*Subvarieties.*

*Beurré Diel.* — Leaves large, and flowers very large. A hardy tree, somewhat fastigiate in its shape ; a great bearer, and deserving of extensive cultivation on account of its fruit, independently altogether of its handsome shape and large flowers.

*Beurré de Rans* (not Beurrée rance, as commonly written, which means rank, or rancid). — Branches spreading, or pendulous. The best very late pear yet known. It bears very well as a standard.

*Bezi de la Motte.*—Leaves remarkably narrow.

*Glout Morceau.* (*fig.* 762.) — Branches spreading. Head pyramidal. A hardy tree, and a great bearer. The fruit of most excellent flavour.

762. *P. c.* var. Glout Morceau

and hanging late on the tree. There is a plate of this variety in the *Arb. Brit.*, 1st edit., vol. vi.

*Napoléon.* — Leaves broad and shining. Blossoms large. The tree vigorous, and a good bearer. The fruit excellent.

*Swan's Egg.* — A handsome pyramidal tree, and an excellent bearer. The fruit roundish, or obovate. This is one of the commonest pear trees in the market-gardens about London; and we have introduced the name here, from having ourselves observed the handsome shapes taken by the trees. The fruit, however, as compared with that of the above sorts, is not worth cultivating.

*The following Scotch pears* are recommended by Mr. Gorrie, as forms adapted for landscape scenery; but little can be said in favour of their fruit, as compared with that of the new Flemish varieties.

*The Benvie, the Golden Knap, and the Elcho* take fastigiate forms; the latter more especially, Mr. Gorrie says, may be called the Lombardy poplar of the pear tribe. These trees generally attain the height of from 45 ft. to 50 ft. in as many years, in the Carse of Gowrie, in Perthshire.

*The busked Lady and the Pow Meg* take spreading orbiculate forms, such as will assort with the *A*cer Pseùdo-*P*látanus, and may be called the oaks and elms of the pear family. (See *Gard. Mag.*, vol. iv. p. 11.)

The pear tree, in a wild state, has a pyramidal-shaped head, with thorny branches, at first erect, and afterwards curved downwards and pendulous. The roots are few, and descend perpendicularly, with few lateral ramifications, except in shallow and rich soil. The leaves vary exceedingly in different soils, and in different parts of Europe and Asia: in Britain they are generally green, and slightly tomentose, and do not differ greatly in magnitude; but in the woods of Poland, and in the vast steppes of Russia, the leaves of the wild pear trees are commonly white with down, and vary so exceedingly in their dimensions, as to include what are called the willow-leaved, the sage-leaved, the elæagnus-leaved, and other narrow-leaved varieties, which by

many are considered to be species. The fruit of the pear, in a wild state, is seldom more than a fourth part of the size of even the most ordinary cultivated varieties; and it is also austere, and unfit to eat. The plant is always found on a dry soil, and more frequently on plains than on hills or mountains; and solitary, or in small groups, rather than in woods and forests. The rate of growth is 2 or 3 feet a year for the first 6 or 7 years; in 10 years it will attain the height of 20 ft. in gardens; and in 30 years the height of 50 ft., with a trunk from 1 ft. to 18 in. in diameter; which may be considered its average dimensions in Britain. The tree is of great longevity. M. Bosc says that he has seen trees that were considered to be more than 400 years old; and Mr. Knight believes that there are trees of the Teynton squash (a famous perry pear) which existed as early as the beginning of the fifteenth century. All writers on trees, from Theophrastus to the present day, agree that, as the tree grows old, it increases in fruitfulness; which is, indeed, the case with most other trees.

The wood of the wild pear is heavy, strong, compact, of a fine grain, and slightly tinged with red. It weighs, green, 79 lb. 5 oz. per cubic foot; and, when dry, from 49 lb. to 53 lb. This wood, in common with that of all the *Rosàceæ*, is liable to have its natural colour changed by steeping it in water; which ought, therefore, to be avoided when it is intended for particular purposes. It is readily stained black, and then so closely resembles ebony as to be scarcely distinguishable from it. When it can be obtained, it is much used by turners and pattern-makers; also for joiners' tools, and to make various articles which are dyed black in imitation of ebony. As fuel, the wood of the pear is excellent, producing a vivid and durable flame, accompanied by intense heat. It also makes excellent charcoal. The leaves, according to Withering, afford a yellow dye, and may be used to give a green to blue cloths. The great use of the pear tree, however, is as a fruit tree. The fruit is used in the dessert, and for stewing and preserving. It is also occasionally used in tarts, though very inferior for this purpose to apples. In France and Belgium, the fruit is very generally dried in ovens, in which state it forms an article of commerce both domestic and foreign, and will keep a year. It is also dried in this manner in Russia; and, when stewed, is excellent, either as a substitute for pies and puddings, or as forming part of the dessert. It is essential that the soil should be dry; and, where the tree is intended to grow large and be productive, it ought to be deep and good. There are few trees better adapted for being grown in hedgerows than the fastigiate-growing varieties of pear, because their roots descend perpendicularly, and can, therefore, never interfere with the plough; and the heads, whether fastigiate or spreading, it is known from experience, do very little injury to pasture. If, therefore, fastigiate-growing trees, producing excellent sorts of fruit, were planted in all hedges, a very great benefit would result to the proprietors and to the public. The wild pear is continued by seed; and the varieties cultivated for their fruit are budded or grafted on stocks of different kinds. For the poorer soils, and exposed situations, stocks of the wild pear of the given locality must, doubtless, be the best, because they must be the hardiest: but it is found from experience, and it is consistent with physiological principles, that, on good soils, or where the pear is to be cultivated entirely as a fruit tree, both the tree and the fruit will grow larger when the stock is a seedling pear of some vigorous-growing variety. When dwarf trees are required, the pear is grafted on the quince, the medlar, or the thorn; or on the mountain ash, or some other species of *Sórbus*. It grows remarkably well on the common hawthorn; though, unless the graft be made under ground, it does not form a very safe and durable tree; because, as the scion increases faster in diameter than the stock, it is liable to be blown off. When the graft, however, is made close to the surface of the ground, or immediately under the surface, the root swells in nearly the same proportion as the scion, and there is no danger of the tree being blown down, or of its not being sufficiently long-lived.

2. *P.* (c.) SALVIFO`LIA *Dec.* The Sage-leaved, *Aurelian, or Orleans*, Pear Tree.

*Identification.* Dec. Fl. Fr., 531., in a note; Prod., 2. p. 634.; Don's Mill., 2. p. 622.
*Synonyme.* Poirier Sauger *D'Ourch* in *Bibl. Phys. Econ. Mai* 1817 p. 299.
*Engravings.* Bot. Reg., 1482.; and our *fig.* 763.

*Spec. Char., &c.* Branches thick. Buds tomentose. Leaves lanceolate, entire, tomentose all over when young; when adult, glabrous on the upper surface. Fruit thick, long, fit for making perry. Wild and cultivated about Orleans, in France. (*Dec. Prod.*) Introduced by the London Horticultural Society, in 1826; and, in our opinion, only a variety of the common wild pear.

763. *P.* (c.) salvifòlia.

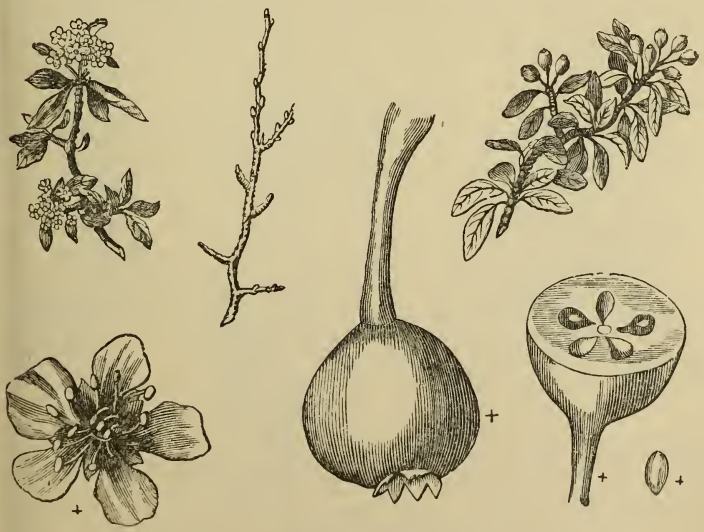
ϒ 3. *P.* (c.) NIVA`LIS *Lin. fil.* The snowy-*leaved* Pear Tree.

*Identification.* Lin. fil. Suppl., 253.; Jac. Fl. Austr., t. 107.; Dec. Prod., 2. p. 634.; Don's Mill., 2. p. 623.
*Engravings.* Jacq. Fl. Austr., t. 107.; and our *fig.* 764.

*Spec. Char., &c.* Leaves oval, entire, obtuse, white and silky beneath. Corymbs terminal. Fruit globose, very acid, except when ripe and beginning to decay, when it becomes very sweet. (*Dec. Prod.*) A native of the Alps of Austria, where it grows to the height of 10 or 12 feet. It was introduced into the Horticultural Society's Garden in 1826, or before; and is already 15 ft. high, forming a very handsome white-foliaged tree; though, as we think, decidedly only a variety, or race, of the common wild pear.

764. *P.* (c.) nivàlis.

ϒ 4. *P.* (c.) SINA`ICA *Thouin.* The *Mount* Sinai Pear Tree.



765. *P.* (c.) sinàica.

*Identification.* Thouin Mém. Mus., 1. 170. t. 9.; Dec. Prod., 2. p. 634.; Don's Mill., 2. p. 622.

*Synonymes.* *P.* Sinàì *Desf. Arb.* 2. p. 144., *N. Du Ham.* 6. t. 57.; *P.* pêrsica *Pers. Syn.* 2. p. 40.; the Mount Sinai Medlar.
*Engravings.* Mém. Mus., 1. t. 9.; N. Du Ham., 6. t. 57.; Dend. Brit., t. 49.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 765.

*Spec. Char., &c.* Very much branched, and spreading. Buds whitishly pubescent. Leaves ovate-oblong, subacute, very minutely crenated; whitishly pubescent beneath, above glabrous and almost shining; falling off late. (*Dec. Prod.*) A native of Mount Sinai, whence it was brought to the Paris Garden early in the present century, and introduced into England in 1820. It so closely resembles the preceding sort, as hardly to be distinguishable from it; and we have no doubt that seeds of either, if sown to a considerable extent, would produce plants of these and several other kinds.

♆ 5. *P.* (c.) SALICIFO'LIA *L.* The Willow-leaved Pear Tree.

*Identification.* Lin. Suppl., 255.; Dec. Prod., 2. p. 635.; Don's Mill., 2. p. 622.
*Synonymes.* *P.* elæagnifòlia *Pall.*; *P.* orientàlis *Horn. Suppl.* 52.; *P.* (C.) elæagnifòlia *Arb. Brit.* 1st edit. p. 889.
*Engravings.* Pall. Itin., 3. p. 374. t. N. f. 3.; Fl. Ros., 1. t. 9.; and our *fig.* 766.

*Spec. Char., &c.* Buds whitely tomentose. Leaves linear-lanceolate, acute, entire, hoary, particularly upon the under surface. The disk three times as long as the petiole. Flowers upon short pedicels, disposed in corymbs, a few in a corymb. (*Dec. Prod.*) A native of Siberia, common in the deserts between the rivers Cuma and Terec; and found, also, on Caucasus, and in Persia, generally accompanied by *C. Oxyacántha* and *Prùnus spinòsa*. It was introduced into England in 1780; and forms a very distinct variety; attaining the height of 20 or 25 feet. There are fine trees of this sort, 20 ft. high, at White Knights.

766. *P.* (c.) salicifòlia.

♆ 6. *P.* (c.) AMYGDALIFO'RMIS *Vil.* The Almond-shaped Pear Tree.

*Identification.* Vill. Cat. Strasb., 322.; Dec. Suppl., 531.; Dec. Prod., 2. p. 634.; Don's Mill., 2. p. 622.
*Synonymes.* *P.* sylvéstris *Magnol. Bot.* 215.; *P.* salicifòlia *Lois. Not.* 79.
*Engraving.* Our *fig.* 767.

*Spec. Char., &c.* Spiny. Buds tomentose. Leaves oblong, acute, entire; tomentose all over when young; when adult, glabrous on the upper surface. The disk six times longer than the petiole. Flowers in corymbs. (*Dec. Prod.*) Wild in rough places in France, in Provence, Dauphiny, and Languedoc; and very closely resembling the preceding sorts. It was introduced in 1810; and the finest plant that we know of it, in the neighbourhood of London, is at Kenwood; where it is 22 ft. high, with a very irregular picturesque head, and many of the side branches sweeping the ground. In May, it is completely covered with white blossoms, and in autumn with small green fruit, which drop off with the first severe frost.

767. *P.* (c.) amygdaliformis.

♆ 7. *P.* SINE'NSIS *Lindl.* The Chinese Pear Tree.

*Identification.* Lindl. Hort. Trans., 6. p. 396.; Don's Mill., 2. p. 622.
*Synonymes.* *Pyrus* communis *Lois. Cochin.* p. 321.; *P.* sinica *Royle Illustr.* p. 207.; Ri vulgo Nas, *Japanese*, *Kæmpf. Amœn.* fasc. 804.; the Sandy Pear, Snow Pear, Sand Pear; Sha Lee, *Chinese.*
*Engravings.* Bot. Reg., t. 1148.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 768.

*Spec. Char., &c.* Leaves cordate, apiculated, shining, serrated, and when young, pubescent beneath. Peduncles corymbose. Calyx glabrous inside. Fruit warted and bony. (*Don's Mill.*) A deciduous tree of the middle size

768. *P.* sinensis.

China and Cochin China. Height 15 ft. to 20 ft. Introduced in 1820. Flowers white, slightly tinted with pink. Fruit large, edible, yellowish green when ripe; rarely seen in England.

Differs from the common pear in having longer and greener branches, and larger, more lucid, and almost evergreen leaves; insipid, roundish, warted, very gritty fruit; and a calyx, the inside of which is destitute of the down that is found on all the varieties of the European pear. The fruit is perfectly hardy, and it is ornamental; but it is worthless as a fruit tree, It vegetates very early in spring; when it is easily recognised by the deep rich brown of its young leaves and shoots.

☆ 8. *P.* BOLLWYLLERIA'NA *Dec.* The Bollwyller Pear Tree.

769. *P.* bollwylleriàna.

*Identification.* Dec. Fl. Fr. Suppl., p. 530.; Prod., 2. p. 634.; N. Du Ham., 6. p. 191.; Don's Mill., 2. p. 522.
*Synonymes.* *P.* bollwylleriàna *J. Bauh. Hist.* 1. p. 59. ic.; *P.* Pollvèria Lin. Mant. 234.; *P.* auriculàris *Knoop Pomol.* 2. p. 38. t. 4., according to Reichenbach.
*Engravings.* J. Bauh. Hist., ic.; Knoop Pomol., 2. p. 38. t. 4., according to Reichenbach; N. Du Ham., 6. t. 58.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 769.

*Spec. Char., &c.* Buds downy. Leaves ovate, coarsely serrated, tomentose beneath. Flowers many in a corymb. Fruit top-shaped, small, yellowish within. (*Dec. Prod.*) A deciduous tree of the middle size, with but few ascending thick coarse branches. France, at Bollwyller on the Rhine, in hedges, but rare; possibly a hybrid between the pear and apple. Height 10 ft. to 20 ft. Introduced in 1786. Flowers white; April and May. Fruit greenish brown; ripe in September.

A very distinct variety, with large rough leaves, having somewhat the appearance of those of the apple. The fruit is turbinate, small, orange yellow, and unfit to eat. The tree produces fewer branches than any other species or variety of pear; and these branches are upright, thick, and rigid.

### ♆ 9. *P.* VARIOLO'SA *Wall.* The variable-*leaved* Pear Tree.

*Identification.* Wall. Cat. 680.; Don's Mill., 2. p. 622.
*Synonyme.* *P. Páshia* Ham. ex Herb. Lin. Soc.
*Engravings.* The plate in Arb. Brit., 1st edit., vol. vi.: and our *fig.* 770.

770. *P.* variolòsa.

*Spec. Char., &c.* Leaves ovate, acuminated, crenated, glabrous in the adult state, on long petioles; when young, clothed with yellowish tomentum beneath. Umbels terminal. Pedicels and calyxes woolly. (*Don's Mill.*) A deciduous tree. Nepal and Kamaon. Height, in its native country, 40 ft. to 50 ft.; in England 10 ft. to 15 ft. Introduced in 1825. Flowers white, slightly tinged with pink; April and May. Fruit pear-shaped; ripe in October, and remaining on the tree in the climate of London all the winter; eatable, like that of the medlar, in a state of incipient decay.

In the open air, in mild winters, this species is sub-evergreen; and, against a wall, in the Horticultural Society's Garden, it is completely so. It forms a very handsome tree, but is rather tender, having been killed to within a few feet of the ground, in several places in the neighbourhood of London, by the winter

of 1837–8. It has ripened fruit in the Fulham Nursery, which is brown when ripe, and which, according to Dr. Royle, is not eatable until it is somewhat decayed. The veins of the leaves, and the entire plant, are tinged with reddish brown. The young seedlings of this species, and also the root shoots from plants cut down, have the leaves cut like a *Cratæ'gus* or *Sórbus*.

### ✝ 10. *P.* Michau'xii Bosc. Michaux's Pear Tree.

771. *P. Michaúxii.*

*Identification.* Bosc in Poir Suppl., 4. p. 432.; Don's Mill., 2. p. 623.
*Engraving.* Our *fig.* 771. from a specimen in Dr. Hooker's herbarium.

*Spec. Char., &c.* Leaves oval, quite entire, acutish, glabrous on both surfaces, and shining above. Peduncles usually twin, when bearing the fruit thick and woody. Fruit globose. (*Don's Mill.*) A deciduous tree. North America. Height 15 ft. to 20 ft. Introduced in 1837. Flowers ?.

There are plants of this species in the Hort. Soc. Garden, and in some of the London nurseries; but they are too small to enable us to form any judgement as to the kind of tree which they will ultimately form.

### ✝ 11. *P.* i'ndica *Colebr.* The Indian Pear Tree.

*Identification.* Colebr. Wall. Pl. Rar. Asiat., 2. t. 172.; Don's Mill., 2. p. 622.
*Engravings.* Wall. Pl. Rar. Asiat., 2. t. 172.; and our *fig.* 772.

*Spec. Char., &c.* Leaves ovate, or ovate-cordate, acute, serrulated, glabrous, white beneath, as well as the petioles and calyxes; in the young plants lobed. Claws of the petals shorter than the calyx. Umbels sessile, few-flowered. Styles villous at the base. (*Don's Mill.*) A deciduous tree. Bengal, on the mountains of Sylhet. Height 15 ft. to 20 ft. Introd. ?. Flowers white; May. Fruit about the size of a wild pear; ripe in October.

772. *P. indica.*

## § ii. *Mà lus.*

*Sect. Char.* Petals spreading, flat. Styles 5, more or less strictly connate at the base. Pome mostly globose, depressed, and invariably having a concavity at its base. Flowers in corymbs. Leaves simple, not glanded. (*Dec. Prod.*) — This section includes all the apples and crabs.

### ✝ 12. *P. Ma'lus L.* The *common, or wild,* Apple Tree.

*Identification.* Lin. Sp., 686.; Smith's Eng. Flora, 2. p. 362.; Lindl. Synop., 2d edit., p. 105.; Dec. Prod., 2. p. 635.; Don's Mill., 2. p. 623.
*Synonymes.* *P. Mà lus mitis Waltr. Sched.* p. 215.; *Mà lus communis Dec. Fl. Fr.*; Pommier commun, *Fr.*; gemeine Apfelbaum, *Ger.*; Pero Melo, and Melo Pomo, *Ital.*
*Engravings.* Eng. Bot., t. 179.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 773.

*Spec. Char., &c.* Leaves ovate, acute, crenated, woolly on the under surface. Flowers in corymbs. Tube of calyx woolly. Styles glabrous. (*Dec. Prod.*) A deciduous tree. Europe in woods and wastes; frequent in hedges. Height 20 ft. to 30 ft., sometimes 50 ft. In cultivation as a fruit tree from time immemorial. Flowers white, tinged with pink; May. Fruit red and yellow; ripe in October. Decaying leaves brownish.

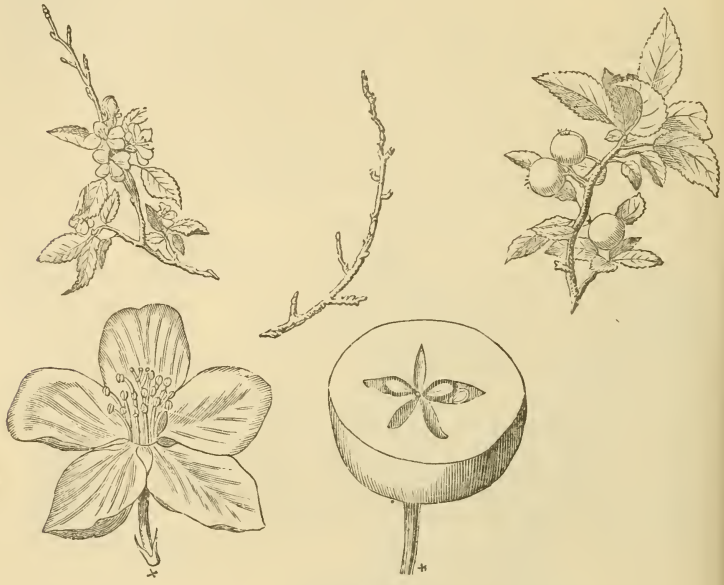
773. *P. Mà lus.*

Cultivated in gardens, it is wholly, or conjointly with other species or races, the parent of innumerable varieties, termed,

generally, in England, cultivated apple trees; and in France, pommiers doux, or pommiers à couteau. We adopt the specific name *M*ǎlus, to indicate what may be called the normal form, for the sake of convenience, though many of the cultivated varieties are derived not only from the wild apple, or crab, of Europe, but from the crabs of Siberia. We shall designate these crabs as varieties of *P. M*ǎlus, and afterwards make a selection from the cultivated sorts, of such as we think suitable for being planted for their timber, or as ornamental trees.

♀ 13. *P.* (*M.*) ACE'RBA *Dec.* The sour-*fruited* Apple Tree, *or common Crab.*

*Identification.* Dec. Prod., 2. p. 635.; Don's Mill., 2. p. 623.



774. *P.* (*M.*) acérba.

*Synonymes.* Pyrus Mǎlus austèra *Wallr. Sched.* 215.; *M*ǎlus acérba *Merat Fl. Par.* 187., *Dec. Suppl.* 530.; *M.* communis sylvéstris *Desf.*; *P.* Mǎlus sylvéstris *Fl. Dan* t. 1101.; *P.* Mǎlus *Smith Eng. Bot.* t. 179.; Pommier sauvageon, *Fr.*; Holzapfelbaum, *Ger.*; Melo salvatico, *Ital.*
*Engravings.* Fl. Dan., t. 1101.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 774.

*Spec. Char., &c.* Leaves ovate, acute, crenated, glabrous even when young. Flowers in corymbs. Tube of the calyx glabrous. (*Dec. Prod.*) A native of woods and way sides in Europe. This form, according to DeCandolle, yields many subvarieties with sour fruit, called, in Britain, cider apples; and in France, generally, pommiers à cidre.

775. *P.* (*M.*) prunifolia.

♀ 14. *P.* (*M.*) PRUNIFO'LIA *W.* The Plum-tree-leaved Apple Tree, *or Siberian Crab.*

*Identification.* Willd. Sp., 2. p. 1018.; Dec. Prod., 2. p. 635.; Don's Mill., 2. p. 646.
*Synonymes.* *P.* Mǎlus *β Ait. Hort. Kew.* 2. p. 175.; ? Mǎlus hybrida *Desf. Arb.* 2. p. 141.
*Engravings.* Mill. Ic., t. 269.; and our *fig.* 775.

*Spec. Char., &c.* Leaves ovate, acuminated, serrated, glabrous. Peduncles pubescent. Tube of calyx glabrous. Styles woolly at

the base; and, as appears from *Mill. Ic.*, t. 269., with the styles twice as long as the stamens, and the fruit subglobose, yellowish, and austere. (*Dec. Prod.*) A native of Siberia; introduced in 1758.

According to Mr. Knight, some of the finest varieties raised by him are from cultivated apples fecundated with the blossoms of this tree. The progeny, he found, formed more hardy trees than any other kinds, and produced earlier and more highly flavoured fruit.

♃ 15. *P.* (*M.*) BACCA'TA *L.* The berry-*like-fruited* Apple Tree, *or Siberian Crab.*

*Identification.* Lin. Mant., 75.; Amm. Ruth., t. 31.; Pall. Fl. Ross., t. 10.; Dec Prod., 2. p. 635. Don's Mill., 2. p. 646.
*Synonyme.* Mâlus baccàta *Desf. Arb.* 2. p. 141.
*Engravings.* Amm. Ruth., t. 31.; Pall. Fl. Ross., t. 10.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 776.

776. (*P. M.*) baccàta.

*Spec. Char., &c.* Disks of leaves ovate, acute, equally serrated, glabrous, the length of the petiole. Flowers grouped. Sepals deciduous. (*Dec. Prod.*) A native of Siberia and Dahuria, and only differing from the preceding sort, of which it is, doubtless, a subvariety, in not having a persistent calyx.

♃ 16. *P.* (*M.*) DIOI'CA *W.* The diœcious-*sexed* Apple Tree.

*Identification.* Willd. Arb., 263.; Spec. 5., p. 1018.; Dec. Prod., 2. p. 635.; Don's Mill., 2. p. 646.
*Synonymes.* *P.* apétala *Münch. Hausv.* 5. p. 247., on the authority of Willdenow; Mâlus dioica *Audib. Cat.*
*Engraving.* Our *fig.* 2088. in p. 1106.

*Spec. Char., &c.* Leaves oval, serrated, tomentose beneath. Flowers, in many instances, solitary. Sexes diœcious, by defect. Calyx tomentose. Petals linear, the length of the sepals. Styles glabrous. (*Dec. Prod.*) Not differing in external appearance from a crab or apple tree. Horticultural Society's Garden.

♃ 17. *P.* (*M.*) ASTRACA'NICA *Dec.* The Astrachan Apple Tree.

*Identification.* Dec. Prod., 2. p. 635.; Don's Mill. 2., p. 646.
*Synonymes.* Mâlus astracánica *Dum. Cours.* ed. 2. 5. p. 426.; Transparent de Moscovie; Glace de Zélande; the transparent Crab of English nurseries.
*Engraving.* Our *fig.* 2089 in p. 1106.

*Spec. Char., &c.* Leaves oval-oblong, acute, partially doubly serrated; pale

beneath, and the nerves there villose ; above glabrous, except being slightly downy on the midrib. A native of the country around Astrachan, on the testimony of gardeners. (*Dec. Prod.*) A very ornamental tree, from the beauty of its fruit, which it produces freely, and which is also good to eat.

*Varieties of* P. Màlus *cultivated for their Fruit.* From the above forms, we think it may safely be presumed, that all the apples cultivated for the dessert or the kitchen have been obtained, either by selection from seedlings, or by cross-fecundation ; and that no other wild sort has been used, unless, perhaps, we except *P*ỳrus coronària ; which, however, we have never heard of as being employed in cross-fecundation. These garden, or cultivated, varieties, as will hereafter appear, are very numerous ; but the following selection of sorts, which are handsome-growing trees, or have fruit of a particular character, has been made for us by Mr. Thompson, of the Horticultural Society's Garden, from the collection under his care : —

*The Red Astrachan.* The tree is middle-sized, with a branchy head ; the fruit is of a bright red, with a fine bloom like that of a plum. This is one form of the sort which DeCandolle has designated as *P.* astracánica: our No. 19.

*The White Astrachan,* or transparent Crab of Moscow. The tree resembles the preceding sort, but has the branches tending upwards when young, and afterwards becoming pendulous. The fruit is of a wax colour, with a fine bloom on it, and is almost transparent. This is another form of *P.* (*M.*) astracánica. It is known in English nurseries under the name of the transparent crab.

*The Black Crab* is a tree of the middle size, with very dark small fruit of no value as such.

*The Court pendu plat* is a remarkably dwarf-growing tree, and so late in flowering, that the leaves are expanded before, or at the same time as, the flowers ; and, consequently, the latter are seldom, if ever, injured by frost : for which reason, it is commonly called by gardeners the wise apple. Grafted on the French paradise stock, the tree may be kept of a size not larger than that of a gooseberry bush ; in which state it will bear fruit in abundance and of good flavour.

*The Lincolnshire Holland Pippin* is remarkable for the large size of its blossoms. Its fruit keeps till February.

*The Tulip Apple* is a great bearer of fruit which is of a very bright red.

*The Violet Apple* has fruit of a violet colour, covered with a bloom like that of the plum.

*The Cherry Crab, or Cherry Apple,* is a subvariety of *P.* (*M.*) baccàta. The tree is spreading, with drooping branches ; and the fruit is numerous, and about the size and colour of a large cherry.

*The Supreme Crab* has fruit rather larger than the preceding sort. The tree is of robust growth, and the branches are somewhat erect.

*Bigg's Everlasting Crab* was raised in the Cambridge Botanic Garden, by Mr. Biggs, the curator, from seeds received from Siberia in 1814. It is a vigorous-growing tree, with pendulous branches and abundance of fruit, which, in form and character, are intermediate between *P.* (*M.*) prunifòlia and *P.* (*M.*) baccàta, and which remain on the trees long after Christmas. In sheltered situations, and mild winters, this tree appears almost a subevergreen.

The apple tree, whether in a wild state or cultivated, is by no means so handsome in form as the pear tree, though its blossoms are much more ornamental, and are, besides, fragrant. It seldom grows above half the height of the pear tree ; the oldest apple trees known in Europe not being above 30 or 35 feet in height. The trunk is generally crooked, and the branches rambling horizontally when young, and when old becoming pendulous. The diameter of the head is also often greater than the height of the tree. The apple tree is much more liable to the canker, and other diseases, than the pear tree. The wood of the apple tree, in a wild state, is fine-grained, hard, and of a brownish

colour; and that of the cultivated apple tree is said to be of a still finer and closer grain, which is a result of cultivation contrary to what is usual. The weight of the wood of the apple tree varies much according to the locality in which it is grown. In a green state, it weighs from 48 lb. to 66 lb. per cubic foot; and it loses from an eighth to a twelfth of its bulk in drying, and about a tenth of its weight. The wood of the cultivated tree weighs heavier than that of the wild tree, in the proportion of about 66 to 45. The tree, as an object in landscape scenery, cannot be recommended as harmonising well with other forms; but, as it has a character of its own, and as the fruit is of the greatest use to the poor, as well as to the rich, it deserves introduction into every hedgerow and every orchard. For hedgerows, it is more especially desirable, as, though not so fastigiate as the pear, it does very little injury to the crops by its shade; and it may be added, that, in nurseries and market-gardens, the former more especially, young trees of almost every kind thrive under the shade both of the apple and the pear. The crab is used as a stock for the cultivated apple, and for all the other species and varieties of this division of the genus; but, as we have before observed, it will not serve as a stock for the pear, or any of the plants included in that or the other divisions of *Pỳrus*. In France, and also in some parts of Germany, the thorny wild apple, or crab, is formed into live hedges, the branches of which, according to Agricola, are inarched into each other, in order to give them more strength to resist cattle. The fruit of the crab, in the forests of France, is a great resource for the wild boar; and it is also given in that country to swine and cows. A drink of it, called boisson, is made in some parts of France, as well as in England; and verjuice is a well-known description of vinegar produced from the most austere of the fruit. The bark affords a yellow dye; and the leaves are eaten by horses, cows, sheep, and goats. Pomatum, according to Gerard, was so called from its being anciently made of the pulp of apples beaten up with "swine's grease" (lard) and rose-water. The uses of the apple as an eatable fruit are very numerous, and well known. The apple, as a fruit tree, will do no good, except in a fertile soil and a sheltered situation. All the best apple orchards of England, and more especially those of the cider districts, it has been observed by geologists, follow the tract of red sandstone, which stretches across the island from Dorsetshire to Yorkshire. It has been observed in Ireland (see *Dublin Soc. Trans.*), that the best orchards there are on limestone gravel; and, in Scotland, that the few orchards which are to be found in that country are on soils more or less calcareous. On the Continent, the two districts most famous for apple trees are Normandy and the Vale of Stuttgard; and the subsoil, in both countries, is well known to be limestone. In short, every kind of fruit, to be brought to perfection, requires a soil more or less calcareous.

The propagation and culture of the apple are the same as those of the pear tree. Wild crabs, like wild pears, are gathered when they are fully ripe, and either laid in a heap to rot, or passed between fluted rollers, and the crushed fruit pressed for the juice, which is made into an inferior kind of cider or perry, and the seeds are afterwards separated from the pomace by maceration in water and sifting. The apple, like the pear, may be grafted on the common thorn; but it does not form nearly so desirable a tree on that stock as the pear does, and therefore crab stocks are always to be preferred. As a fruit tree, where it is intended to be grown as a dwarf, the paradise stock effects for it what the quince does for the pear, and the *Cérasus Mahàleb* for the cherry. (See *Encyc. of Gard.*, edit. 1835.)

♃ ♀ 18. *P.* CORONA'RIA *L.* The garland-*flowering* Apple Tree.

*Identification.* Lin. Sp., 687.; Dec. Prod., 2. p. 635.; Don's Mill., 2. p. 647.
*Synonymes.* *Mâlus coronària Mill.*; Crab Apple, the sweet-scented Crab. *Amer.*
*Engravings.* N. Du Ham., 6. pl. 44. f. 1.; Bot. Mag., t. 2009.; Michx. Arb., 2. t. 65.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 777.

*Spec. Char., &c.* Leaves broadly ovate, rounded at the base, subangulate, serrated, smooth. Peduncles in corymbs, glabrous. Flowers odorous,

777. *P.* coronària.

white, becoming purple before they drop off. The fruit is flatly orbiculate, of a deep green when it falls from the tree, and becoming yellow after lying some time on the ground. (*Dec. Prod.*) A deciduous or sub-evergreen tree. North America, from Pennsylvania to Carolina, and more especially abundant in the back parts of Pennsylvania and Virginia. Height 15 ft. to 18 ft., with a trunk 5 or 6 inches in diameter; sometimes 25 ft. high. Introduced in 1724. Flowers white, tinged with pink, violet-scented; May. Fruit green, in no state fit to eat; ripe in October. Decaying leaves green, violet-scented, dropping off by the first severe frost; but in mild winters remaining on till spring.

In British gardens, the leaves and the fruit are retained much longer on the tree than is the case with the European crab; so much so, that in very mild seasons, and sheltered situations, it might be almost considered sub-evergreen. The deep green and flat round form of the fruit, and the lobed and veined character of the leaves, render this sort of *M*àlus easily distinguished from every other; and this distinctiveness of character, and the fragrance of the blossoms, together with the lateness of their appearance (which is in the end of May), render it a most desirable tree in every shrubbery, however small.

♈ ♀ 19. *P.* (c) ANGUSTIFO'LIA *Ait.* The narrow-leaved Apple Tree.

*Identification.* Ait. Hort. Kew., 2. p. 276.; Pursh Fl. Amer. Sept., 1. 24.; Dec. Prod., 2. p. 635.; Don's Mill., 2. p. 647.
*Synonymes.* *P.* coronària *Wang. Amer.* 61. t. 21. f. 47., upon the authority of Willdenow, and Wats. in Dend. Brit.; *M*àlus sempervìrens *Desf. Arb.* 2. p. 141.; *P.* pùmila *Hort.*
*Engravings.* Wang. Amer., 61. t. 21. f. 47.; N. Du Ham., 6. t. 43. f. 1.; Wats. Dend., t. 132.; Bot. Reg., t. 1207.; the plate in Arb. Brit., 1st edit., vol. vi., and our *fig.* 778.

*Spec. Char., &c.* Leaves glossy, lanceolate-oblong, dentately serrated, tapered and entire at the base. Flowers in corymbs. (*Dec. Prod.*) A deciduous tree, sometimes sub-evergreen. Carolina, in woods. Height 15 ft. to 20 ft. Introduced in 1750. Flowers pale blush; May or June. Fruit green ripe in October.

Differs from the preceding sort in having the leaves narrower and the fruit much smaller, in being more decidedly sub-evergreen, and in having

778. *P.* (c.) angustifòlia.

lead-coloured speckled branches. Notwithstanding all these points of difference, however, it bears such a general resemblance to *P.* coronària, that we cannot doubt its being only a variety of it. The fruit is intensely acid, like that of *P.* coronària; but it is much narrower and smaller.

† 20. *P.* SPECTA'BILIS *Ait.* The showy-*flowering wild* Apple Tree, *or Chinese Crab Tree.*

*Identification.* Ait. Hort. Kew., 2. p. 175.; Curt. Bot. Mag., t. 267.; Dec. Prod., 2. p. 635.; Don's Mill., 2. p. 646.
*Synonymes.* Mâlus spectâbilis *Desf. Arb.* 2. p. 141., *N. Du Ham.* 6. p. 141.; Mâlus sinénsis *Dum. Cours.* ed. 2. 5. p. 429.
*Engravings.* Bot. Mag., t. 267.; N. Du Ham., 6. t. 42. f. 2.; the plate of the species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 779.

*Spec. Char., &c.* Leaves oval-oblong, serrated, smooth. Flowers in sessile umbels, many in an umbel; large, and very elegant; at first of an intense rose-colour, but afterwards of a pale one. Tube of calyx smooth. Petals ovate, clawed. Styles woolly at the base. (*Dec. Prod.*) A deciduous tree, thickly crowded with upright branches, which at length become spreading. China. Height 20 ft. to 30 ft. Introduced in 1780. Flowers pink, large, showy; April and May. Fruit greenish yellow, and unfit to eat till it is in a state of incipient decay.

This is by far the most showy of all the different species of *Pỳrus*, both of this and of the other sections. The flowers are semidouble, and of a pale rose-colour; but before they are expanded, the flower buds, which are large, appear of a deep red. In this state the tree is extremely beautiful. The stamens and pistils are much more numerous than in the other species; the former sometimes exceeding 40, and the latter 20. The fruit is small, irregularly round, angular, and about the size of a cherry: it is of a yellow colour when ripe, but is without flavour, and is only fit to eat when in a state of incipient decay; at which period it takes the colour and taste of the medlar. No garden, whether large or small, ought to be without this tree.

779. *P. spectábilis.*

*Species of which there are only very young Plants in British Gardens.*

P. *Sievérsii Led. Fl. Alt.* 2. p. 222., *Don's Mill.* 2. p. 647.; *P.* nov. sp. *Sievers* in *Pall. Nord. Beitr.* 7. p. 292.; is a bush, with many stems rising from the same root; with ovate leaves, rather tomentose; and umbellate flowers, succeeded by very acid fruit. A native of Siberia.

P. ? *Schóttii Ledeb.*—Plants in the Hort. Soc. Garden.

P. *stipulàcea* Hort.—Plants in the Hort. Soc. Garden, raised from seeds received from the Himalayas.

## § iii. A'*ria* Dec.

*Sect. Char., &c.* Petals spreading, flat. Styles mostly 2—3. Pome globose. Flowers in racemose corymbs; the peduncles branched. Leaves simple, not glanded, whitely tomentose beneath. (*Dec. Prod.*, ii. p. 635.)—Deciduous trees, natives of different parts of Europe, and of Asia; chiefly found on dry, calcareous, or clayey soils, and varying much under cultivation. The species and varieties are in a state of great confusion.

### ♃ 21. *P. A'*ria *Ehrh.* The White Beam Tree.

*Identification.* Ehrh. Beitr., 4. p. 20.; Dec. Prod., 2. p. 636.; Don's Mill., 2. p. 647.

*Synonymes.* Cratæ'gus *A'*ria var. α *Lin. Sp.* 681.; *Méspilus A'*ria *Scop.*; *Sórbus A'*ria *Crantz Austr.* 1. t. 2. f. 2., *Bauh. Hist.* 1. p. 65.; *A'*ria Theophrásti L'Obel; white wild Pear, white Leaf Tree, red Chess-Apple, Sea Ouler, Cumberland Hawthorn, *Gerard*; Alisier Allouchier, Alisier blanc, *Fr.*; Mehlbeerbaum, or Mehlbaum, *Ger.*; Aria, or Sorba montana, *Ital.*; Mostaco, *Span.*; Axelbeer, *Dan.*; Oxilbeer, *Swed.*

*Derivation.* *A'*ria, the name given to this tree by Theophrastus, is probably from the name of that country in Asia. The White Beam Tree is a pleonasm, *beam* being the Saxon word for tree. The word Allouchier is from *allouchion*, the cog of a wheel, the wood of the tree being much used for that purpose in France. Mehlbaum is literally the meal tree, from the mealy appearance of the under side of the leaves.

*Engravings.* Crantz Austr., 1. t. 2. f. 2.; Eng. Bot., t. 1858.; Fl. Dan., t. 302.

*Spec. Char., &c.* Leaves ovate, doubly serrated, tomentose beneath, with appressed white tomentum. Corymbs flat. (*Dec. Prod.*) A deciduous tree

*Varieties.*

ϒ P. A. 1 *obtusifòlia* Dec. Prod. ii. p. 636., and Fl. Dan. t. 302.; *P. A* ovàlis *Hort.*—Leaves broadly ovate, and obtuse.

ϒ P. A. 2 *acutifòlia* Dec. Prod. l. c. *C*ratæ`gus longifòlia *N. Du Ham.* 4. t. 34.; ? *P*ỳrus alpìna *Willd. Enum.* 527.—The leaves are ovate-oblong and acute.

ϒ P. A. 3 *undulàta* Lindl. Hort. Trans. vii. p. 234., and the plate in Arb. Brit. 1st edit. vol. vi., and our *fig.* 780., has the leaves flat, oval-

780. *P. A*'ria undulàta.

lanceolate, broad, undulated, unequally and deeply serrated, acuminated, and cobwebbed above.

ϒ P. A. 4 *angustifòlia* Lindl. l. c., *P. A.* longifòlia *Hort.*, has the leaves oval, obtuse, concave, somewhat simply serrated, woolly above.

ϒ P. A. 5 *rugòsa* Lindl. l. c.—Leaves large, ovate-elliptic, doubly serrated, shining above and wrinkled, white beneath.

ϒ P. A. 6 *crética* Lindl. l. c. *P. A.* rotundifòlia *Hort.*; *P.* græ`ca *Hort.*, *P. A.* edùlis *Hort.*; *C*ratæ`gus græ`ca *Hort.*—Leaves flat, orbicularly elliptic, crenately serrated, retuse, cuneated at the base; smooth above, and hoary beneath. Branches cobwebbed.

ϒ P. A. 7 *bullàta* Lindl. Hort. Trans. vii. p. 234., *P. A.* acuminàta *Hort.*, has the leaves concave, elliptic, acuminated, blistered; closely serrated at the apex, but entire at the base.

The rate of growth, when the tree is young and in a good soil, is from 18 in. o 2 ft. a year: after it has attained the height of 15 or 20 feet it grows much lower; and, at the age of twenty or thirty years, it grows very slowly; but s a tree of great duration. The roots descend very deep, and spread very vide; and the head of the tree is less affected by prevailing winds than almost ny other. In the most exposed situations, on the Highland mountains, this ree is seldom seen above 10 or 15 feet high; but it is always stiff and erect.

In Britain it is later in coming into leaf than any other indigenous tree, except the ash. It bears lopping, and permits the grass to grow under it.

The wood is very hard, of a fine close grain, yellowish white, and susceptible of a high polish. In a green state, it has a strong smell, which it retains, in a slight degree, even after it is dried. It weighs, in that state, 55 lb. 6 oz. per cubic foot. It may be stained of any colour, and is much used in the smaller manufactures, such as making handles to knives and forks, wooden spoons, &c.; and for musical instruments, and various turnery articles. It was universally employed as cogs for wheels till cast iron became generally substituted for it. The leaves are eaten both by goats and sheep. The fruit is acid and astringent; but it is not disagreeable to eat, when it is in a state of incipient decay. Dried, and reduced to powder, it has been formed into a sort of bread, which has been eaten, both in France and Sweden, in years of great scarcity. Fermented, the fruit affords a beer; or, by distillation, a powerful spirit. It is greedily eaten by small birds; on which account the trees are ordered to be preserved in the French forests, that the number of birds may be increased, in order to keep down the insects. The fruit is also the food of squirrels; and, when it drops, of the wild boar, the deer, the hedgehog, &c.

As an ornamental tree, the white beam has some valuable properties. It is of a moderate size, and of a definite shape; and in summer, when clothed with leaves, it forms a compact green mass, till it is ruffled by the wind, when it suddenly assumes a mealy whiteness. In the winter season, the tree is attractive from its smooth branches, and its large green buds. When the tree is covered with its fruit, it is exceedingly ornamental. Among the different varieties enumerated, *P. A.* crética is by far the most distinct: but all of them are well deserving of cultivation.

A calcareous and dry soil is essential; and the tree will not attain a timber size unless it is placed in an airy situation. The situation may be exposed to the highest and coldest winds that prevail in this country, and yet the tree will never fail to grow erect, and produce a regular head; and, for this reason, no tree is better adapted for sheltering houses and gardens in very exposed situations.

The species may be raised from seed, and the varieties be grafted on stocks of the species of the pear, of the *C*ratæ'gus, and even of the quince and medlar; which trees, it is almost unnecessary to add, may be reciprocally grafted on the white beam tree. When plants are to be raised from seed, the seeds should be sown as soon as the fruit is ripe; otherwise, if kept till spring, and then sown, they will not come up till the spring following. When it is inconvenient to sow them immediately after they are gathered, they may be mixed with soil, and treated like haws (see *Pỳ*rus aucupària); and, if sown in the March following, they will come up the same season. The varieties may be propagated by cuttings, or by layering; but they root by both modes, with great difficulty. Layers require to be made of the young wood, and to remain attached to the stool for two years.

♀ 22. *P.* (*A.*) INTERME'DIA *Ehrh.* The intermediate White Beam Tree.

*Identification.* Ehrh. Beitr., 4. p. 20.; Dec. Prod., 2. p. 636.; Don's Mill., 2. p. 647.
*Synonymes.* Cratæ'gus *A*'ria *β Lin. Sp.* 681.; *C.* scándica *Wahlenb. Fl. Ups.* 165.; *C.* suécica *Ait. Hort. Kew.* 167.; Alisier de Fontainebleau, *Fr.*; Schwedischer Mehlbaum, *Ger.*

*Spec. Char., &c.* Leaves ovate, incisely lobed, tomentose beneath, with white appressed tomentum. Corymbs flat. Fruit eatable. (*Dec. Prod.*) A deciduous tree. Europe, in France, Germany, and Sweden, and also in Wales and Scotland. Height 15 ft. to 20 ft. Flowers and fruit as in the preceding kind.

*Varieties.* DeCandolle has described the two following forms of this species:—

♀ P. (A.) *i.* l *latifòlia.* *C*ratæ'gus latifòlia *Poir. Dict.* 4. p. 444., *Du Ham. Arb.* 1. t. 80., *N. Du Ham.* 4. t. 35.; *S*órbus latifòlia *Pers.*; *C*ratæ'gus dentàta *Thuil. Fl. Par.* — Leaves broadly ovate. A native of the woods of Fontainebleau.

☨ P. (A.) *i.* 2 *angustifòlia*. *P.* edùlis *Willd. En.* p. 527. (Wats. Dend. Brit., t. 52.; and our *fig.* 781.)—Leaves oblong, wedge-shaped at the base.

These trees bear so close a resemblance to *P. A`ria*, as to leave no doubt in our mind that they are only varieties and subvarieties of that species. They are found in a wild state in France, Germany, and Sweden; and perhaps also in the Highlands of Scotland, where, according to Sir W. J. Hooker, *P. A`ria* varies in having the leaves more or less cut at the margin. They are all well deserving of culture.

781. *P.* (*A.*) intermèdia angustifòlia.

☨ 23. *P.* VESTI`TA *Wall.* The clothed White Beam Tree.

*Identification.* Wall. Cat., 679.; Don's Mill., 2. p. 647.
*Synonymes.* *Pỳ*rus nepalénsis *Hort.*; *S*órbus vestìta *Lodd. Cat.* edit. 1836; *P.* crenàta *D. Don Prod. Fl. Nep.* p. 237., *Bot. Reg.* t. 1655.
*Engravings* Bot. Reg. t. 1655.; Arb. Brit., 1st edit., vol. vi.; and our *figs.* 782, 783, and 784.

782. *P.* vestìta.

*Spec. Char., &c.* Leaves, cymes, and young branches, clothed with white tomentum. Leaves elliptic, or obovate-elliptic, acuminated, serrated towards the apex. Corymbs branched and terminal. Flowers white. Fruit greenish brown. (*Don's Mill.*) A deciduous tree of the middle size. Nepal and Kamaon, at elevations of from 9,000 to 12,000 ft. Height 20 ft. to 30 ft. Introduced in 1820. Flowers white; May and June. Fruit brown; ripe in October. Decaying leaves of a beautiful straw-coloured yellow or brown.

783 *P.* vestìta.

784. *P.* vestìta.

This tree is remarkable for the rapidity of its growth, its long broad leaves, and their woolly whiteness; and also for being one of the very latest trees, whether foreign or indigenous, in coming into leaf; being later than either the mulberry or ash. The leaves are conspicuous, on their first expansion, for their whiteness, particularly underneath; and in autumn, before they drop off, for their fine yellow colour.

## § iv. *Torminària* Dec.

*Sect. Char., &c.* Petals spreading, flat, having short claws. Styles 2—5, connected, glabrous. Pome scarcely at all juicy, top-shaped at the base, truncate at the tip; the sepals deciduous. Leaves angled with lobes; in the adult state glabrous. Flowers in corymbs. The peduncles branched. (*Dec. Prod.*, ii. p. 636.)—Trees of the same general character, in regard to habit and constitution, as *P. A*ria.

### ♆ 24. *P.* TORMINA'LIS *Ehrh.* The griping-*fruited* Service Tree.

*Identification.* Ehrh. Beitr., 6. p. 92.; Dec. Prod., 2. p. 636.; Don's Mill., 2. p. 647.
*Synonymes.* Cratæ'gus torminàlis *Lin. Sp.* 681., *Smith Eng. Bot.* t. 298., *Fl. Dan.* t. 798., *Jacq. Fl. Austr.* t. 443.; Sórbus torminàlis *Crantz Austr.* p. 85.; the Maple-leaved Service Tree; Alisier de Bois, *Fr.*; Elzbeerbaum, *Ger.*; Ciavardello, or Mangiarello, *Ital.*
*Engravings.* Jacq. Fl. Austr., t. 443.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 785.

785. *P.* torminàlis.

*Spec. Char., &c.* Leaves cordate-ovate, feather-nerved, pinnatifidly lobed; when young, slightly downy beneath; when adult, glabrous; the lobes acuminate and serrated, the lowest divaricate. Seeds cartilaginous. (*Dec. Prod.*) A deciduous tree. Britain in woods, and throughout the Middle and North of Europe, and Western Asia. Height 40 ft. to 50 ft. Flowers white; May and June. Fruit red; ripe in November. Decaying leaves yellowish brown. Naked young wood purplish, marked with white spots.

The leaves, which are on long footstalks, are cut into many acute angles, like those of some species of maple. They are nearly 4 in. long, and 3 in. broad in the middle, bright green above, and slightly woolly underneath. The flowers are produced in large bunches at the end of the branches; and they are succeeded by roundish compressed fruit, not unlike common haws, but larger, and of a brown colour when ripe. The tree is of slow growth, and in this respect, and most others, it resembles *P. A*ria; but it is less hardy. The wood resembles that of *P. A*ria, but is without its peculiarly strong smell. It weighs, when newly cut, 65 lb. to the cubic foot, and when

dried, 48 lb. 8 oz. It is employed for all the different purposes to which that of *P. A'ria* is applicable, and is considered rather preferable as fuel, and for charcoal. The fruit is brought to market both in England and France; and, when in a state of incipient decay, it eats somewhat like that of a medlar. As an ornamental tree, its large green buds strongly recommend it in the winter time, as its fine large-lobed leaves do in the summer, and its large and numerous clusters of rich brown fruit do in autumn. It will grow in a soil not poorer, but more tenacious and moist, than what is suitable for *P. A'ria*; and it requires a sheltered situation. It seems more liable to the attacks of insects than that species, and does not thrive so well in the neighbourhood of London. It is propagated exactly in the same manner as *P. A'ria*. There being no varieties, it does not require to be continued by grafting.

### ✱ 25. *P.* RIVULA'RIS *Dougl.* The River-side Wild Service Tree.

*Identification.* Dougl. MS. Hook. Fl. Bor. Amer., 1. p. 203.; Don's Mill., 2. p. 647.
*Synonyme.* Pow-itch, the name of the fruit in the language of the Chenook tribe of Indians.
*Engravings.* Hook. Fl. Bor. Amer., t. 68.; and our *figs.* 786. and 787.

786. *P.* rivulàris.

*Spec. Char., &c.* Leaves ovate, entire, and angular, somewhat 3-lobed, rather acuminated, acutely serrated, pubescent beneath. Corymbs terminal, simple. Calyces hairy, and densely tomentose inside. Styles 3—4, connected at the base. (*Don's Mill.*) A low deciduous tree. North-west coast of North America, at Nootka Sound, and other places. Height 15 ft. to 20 ft. Introduced in 1836. Flowers white; April and May. Fruit small, subglobose, red or yellow; ripe ?.

787. *P.* rivulàris.

The fruit is used as an article of food, and the wood is employed for making wedges, and is so hard as to be susceptible of a fine polish. Horticultural Society's Garden.

## § v. *Eriólobus* Dec.

*Sect. Char.* Petals spreading, flat, with short claws, and with about 3 teeth at the tip. Styles 5, long; at the base very hairy, and somewhat connected. Pome globose, glabrous, crowned with the lobes of the calyx, which are tomentose upon both surfaces. Leaves palmately lobed, glabrous. Flowers upon unbranched pedicels, disposed in corymbs. (*Dec. Prod.*, ii. p. 636.)

788. *P.* trilobàta.

### ✱ 26. *P.* TRILOBA'TA *Dec.* The three-lobed-*leaved* Pear Tree.

*Identification.* Dec Prod., 2. p. 636.; Don's Mill., 2 p. 648.
*Synonyme.* Cratæ'gus trilobàta *Labill. Dec.* 4. p. 15. t.10., *Poir. Suppl.* 1. p. 291.
*Engravings.* Labill. Dec., 4. t. 10.; and our *fig.* 789.

*Spec. Char., &c.* Leaves glabrous, palmately

lobed; the middle lobe 3-lobed; the side lobes, in many instances, 2-lobed; the secondary lobes serrated. (*Dec. Prod.*) A deciduous tree. A native of Mount Lebanon; growing to the height of 20 ft.; said to have been introduced in 1810; but of which we have not seen a plant.

## § vi. *Sórbus* Dec.

*Sect. Char., &c.* Petals spreading, flat. Styles 2—5. Pome globose, or top-shaped. Leaves impari-pinnate, or pinnately cut. Flowers in branched corymbs. (*Dec. Prod.*)—Trees growing to the height of from 20 ft. to 40 ft. or upwards. Natives of Europe, North America, and the Himalayas. For the most part very hardy, and of easy culture in common soil.

### ☥ 27. *P.* AURICULA'TA *Dec.* The auricled Service Tree.

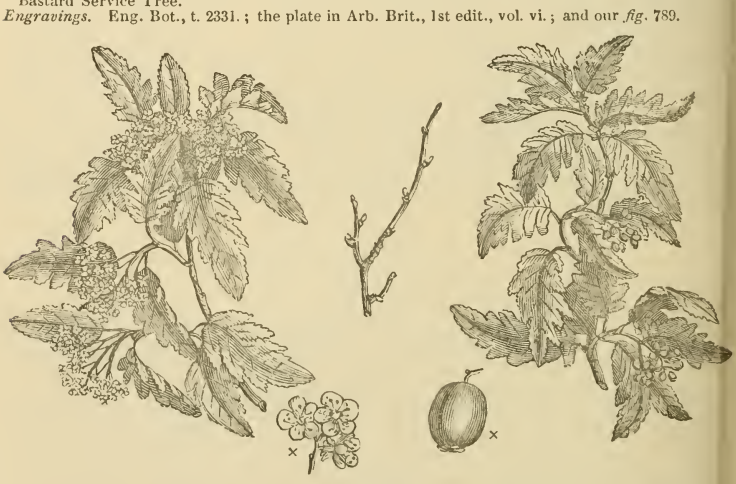
*Identification.* Dec. Prod., 2. p. 636.; Don's Mill., 2. p. 648.
*Synonyme.* Sórbus auriculàta *Pers. Syn.* 2. p. 39.
*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* Leaves of 3 pairs of leaflets, and an odd one, hirsute beneath; 2—4 of the lowest leaflets distinct, the rest connate with the odd one into an ovate one, which is crenate. Corymb compact. (*Dec. Prod.*) A deciduous tree. Egypt. Height 20 ft. to 30 ft. Introduced in 1800. Flowers white; May. Fruit ?.

We have not seen this plant, which is, perhaps, only a variety of *P.* pinnatífida.

### ☥ 28. *P.* PINNATI'FIDA *Ehrh.* The pinnatifid-*leaved* Service Tree.

*Identification.* Ehrh. Beitr., 6. p. 93.; Smith in Eng. Bot., t. 2331.; Dec. Prod., 2. p. 636.
*Synonymes.* Sórbus hýbrida *Lin. Dec.* 6.; *Pýrus* hýbrida *Smith Fl. Brit.*, not of Willd.; the Bastard Service Tree.
*Engravings.* Eng. Bot., t. 2331.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 789.



789. *P.* pinnatífida.

*Spec. Char., &c.* Leaves pinnately cloven, or cut, or almost pinnate at the base. The petiole on the under side, and the peduncles, hoarily tomentose. Pome globose, scarlet. (*Dec. Prod.*) A deciduous tree. Gothland, Thuringia, and Britain, on mountainous woody places. Height 20 ft. to 30 ft. Flowers white; May and June. Fruit red; ripe in September.

*Varieties.*

☥ P. *p.* 2 *lanuginòsa* has the leaves more woolly than those of the species.

♀ P. *p.* 3 *péndula*, *Sórbus hýbrida péndula Lodd. Cat.*, has the head loose, and the branches somewhat pendulous; the fruit red. H. S.

♀ P. *p.* 4 *arbúscula* Dec., Poir. Suppl. v. p. 144.—Dwarf. Leaflets glabrous in a measure, obtuse; the outermost usually connate. A native of Germany. Perhaps a variety of *P.* aucupària. (*Dec. Prod.*)

*P.* pinnatífida, according to DeCandolle, is a hybrid between *P.* intermèdia and *P.* aucupària. Culture as in *P. Aria*.

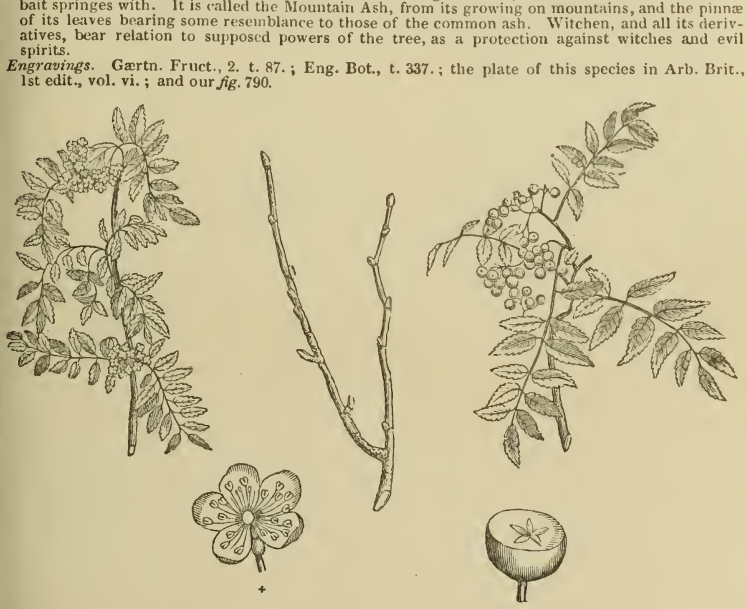
♀ 29. *P.* AUCUPA'RIA *Gærtn.* The Fowler's Service Tree, *or Mountain Ash.*

*Identification.* Gærtn. Fruct., 2. p. 45. t. 87.; Dec. Prod., 2. p. 637.; Don's Mill., 2. p. 648.

*Synonymes.* *Sórbus* aucupària *Lin. Sp.* 683.; *Méspilus* aucupària *All.*; Quicken Tree, Quick Beam, wild Ash, wild Service, Wichen Tree, Rowan Tree, Rowne Tree, Roan Tree, Roddan, Routry Mountain Service, Witchen, wild Sorb, Whichen, Whitten, Wiggen tree; Sorbier des Oiseleurs, or Sorbier des Oiseaux, *Fr.*; Vogel Beerbaum, *Ger.*; Sorbo salvatico, *Ital.*

*Derivation.* The Latin name, *P.* aucupària (the Fowler's Pyrus); the French names, Sorbier des Oiseleurs (the Bird-catcher's Service), and Sorbier des Oiseaux (the Bird Service); and the German name, Vogel Beerbaum (the Bird's Berry Tree); are all derived from the use made of the berries by bird-catchers, in all countries where the tree grows wild, and from time immemorial, to bait springes with. It is called the Mountain Ash, from its growing on mountains, and the pinnæ of its leaves bearing some resemblance to those of the common ash. Witchen, and all its derivatives, bear relation to supposed powers of the tree, as a protection against witches and evil spirits.

*Engravings.* Gærtn. Fruct., 2. t. 87.; Eng. Bot., t. 337.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 790.



790. *P.* aucupària.

*Spec. Char., &c.* Buds softly tomentose. Leaflets serrated, slightly glabrous. Pomes globose. (*Dec. Prod.*) A low tree. A native of almost every part of Europe. Height 20 ft. to 30 ft. Flowers white; May. Fruit red; ripe in September.

*Varieties.*

♀ P. *a.* 2 *frúctu lùteo* has yellow berries, and is continued by grafting.

♀ P. *a.* 3 *fòliis variegàtis* has variegated leaves.

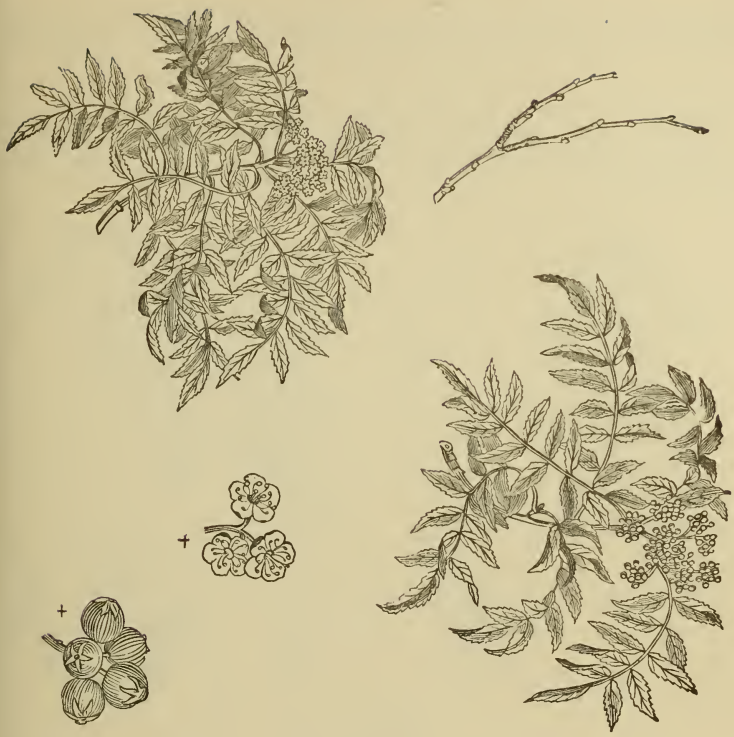
♀ P. *a.* 4 *fastigiàta* has the branches upright and rigid. Horticultural Society's Garden.

The mountain ash forms an erect-stemmed tree, with an orbicular head. When fully grown, like every other description of *Pyrus*, it assumes a somewhat formal character; but in a young state, its branches are disposed in a more loose and graceful manner. The tree grows rapidly for the first three or four years; attaining, in five years, the height of 8 or 9 feet; after which it

begins to form a head, and in ten years will attain the height of 20 ft. This head will continue increasing slowly, though the tree seldom grows much higher, for the greater part of a century; after which, as it appears by the oldest trees that we have observed or heard of in Scotland, the extremities of the branches begin to decay. The tree will not bear lopping, but grass and other plants grow well under its shade. The wood, when dry, weighs 51 lb. 12 oz. per cubic foot. It is homogeneous, fine-grained, hard, capable of being stained any colour, and of taking a high polish; and it is applied to all the various uses of *P. A'ria* and *P.* torminàlis, when it can be obtained of adequate dimensions. In Britain, the tree forms excellent coppice wood, the shoots being well adapted for poles, and for making excellent hoops; and the bark being in demand by tanners. As it will grow in the most exposed situations, and rapidly, when young, it forms an admirable nurse tree to the oak, and other slow-growing species; and, being a tree of absolute habits; that is, incapable of being drawn up above a certain height by culture, it has this great advantage, that, after having done its duty as a nurse, instead of growing up with the other trees, and choking them, it quietly submits to be over-topped, and destroyed by the shade and drip of those which it was planted to shelter and protect. It may be mentioned, as somewhat singular, that the alpine laburnum, though naturally a much lower tree than the mountain ash, will, when drawn up in woods, attain twice the height of the latter tree. The fruit of the mountain ash is greedily devoured by birds: and, in various parts of the North of Europe, these berries are dried and ground into flour, and used as a substitute for the flour made of wheat, in times of great scarcity. In Livonia, Sweden, and Kamtschatka, the berries of the mountain ash are eaten, when ripe, as fruit; and a very good spirit is distilled from them. As an ornamental tree, the mountain ash is well adapted for small gardens; and it is also deserving of a place in every plantation, where the harbouring of singing-birds is an object. In the grounds of suburban gardens in the neighbourhood of the metropolis, the mountain ash forms almost the only tree that makes a great display by means of its fruit; for, though many species of *Cratæ'gus* would be equally effective in this respect, they have not yet become sufficiently well known to the planters of such gardens. One great advantage of the mountain ash, in all gardens, is, that it never requires pruning, and never grows out of shape. The mountain ash will grow in any soil, and in the most exposed situations, as it is found on the sea shore, and on the tops of mountains, in Forfarshire, as high as 2500 ft. Plants are almost always raised from seed, which should be gathered as soon as it is ripe, to prevent its being eaten by birds, which are so fond of it as to attack it even before it is ripe. When gathered, the fruit should be macerated in water till the seeds are separated from the pulp, and they may be then sown immediately; but, as they will, in that case, remain 18 months in the ground before coming up, the common mode adopted by nurserymen is, to mix the berries with light sandy soil, and spread them out in a layer of 10 in. or 1 ft. in thickness, in the rotting ground; covering the layer with 2 or 3 inches of sand or ashes, and allowing them to remain in that state for a year. They are then separated from the soil by sifting, and sown in beds of light rich soil, being covered a quarter of an inch. The plants having large leaves, the seeds should not be dropped nearer together than 2 in., which will allow the plants to come up with sufficient strength. They may be sown any time from November to February, but not later: they will come up in the June following, and, by the end of the year, the strongest plants will be 18 in. high, and fit to separate from the others, and to plant out in nursery lines.

### ♆ 30. *P.* AMERICA'NA *Dec.* The American Service.

*Identification.* Dec. Prod., 2. p. 637.; Hook. Fl. Bor. Amer., 1. p. 204.; Don's Mill., 2. p. 648.
*Synonymes.* Sórbus americàna *Ph. Fl. Bor. Amer.* 1. p. 341., *Willd. Enum* 520.; *S.* americàna var. *β Michx. Fl. Amer.* p. 290.; *P.* canadénsis *Hort.*
*Engravings.* Wats. Dend. Brit., t. 54.; the plate of this species in Arb. Brit., 1st edit., vol. vi. and our *fig.* 791.



791. *P.* americàna.

*Spec. Char., &c.* Leaflets acute, almost equally serrated, glabrous, as is the petiole. Pomes globose, of a purplish tawny colour. (*Dec. Prod.*) A tree, closely resembling the common mountain ash. Canada and Newfoundland, in woods. Height 15 ft. to 20 ft. Introduced in 1782. Flowers white; May. Fruit bright scarlet; ripe in September. Decaying leaves yellowish green. Naked young wood dark purplish.

It is, apparently, a more robust-growing tree than the European mountain ash, with larger leaves, shining above, and smooth beneath; but, in reality, it is more tender. Though it has been many years in the country, we do not know of a large, old, handsome specimen of it any where. It is propagated by grafting on the common mountain ash. On account of the brilliant colour of the fruit, and the large size of the bunches in which it is produced, this species well deserves a place in collections.

♃ 31. *P.* MICROCA'RPA *Dec.* The small-fruited Service.

*Identification.* Dec. Prod., 2. p. 636.; Don's Mill., 2. p. 648.
*Synonymes.* Sórbus aucupària α *Michx. Fl. Bor. Amer.* 2. p. 291.; *S.* micrântha *Dum.Cours.* ed. 2. p. 464.; *S.* microcárpa *Ph. Fl. Amer. Sept.* 1. p. 341.
*Engravings.* Our *fig.*2090. in p. 1107.

*Spec. Char., &c.* Leaflets glabrous, acuminate, unequally incisely serrated; the teeth tipped with a bristle-like mucro. Petiole glabrous. Pome globose, scarlet. (*Dec. Prod.*) A large shrub or low tree. North America, Carolina to New York. Height 10 ft. to 12 ft. Introduced ?. Flowers white; May and June. Fruit scarlet, small; ripe ?.

According to Pursh, this species is very distinct from *P.* americàna; from

which it is distinguished by the young branches being covered with a shining dark brown gloss, and by having small scarlet berries.—We have never seen it.

### ♀ 32. *P. So'rbus Gærtn.* The True Service.

*Identification.* Gærtn. Fructs., 2. p. 45. t. 87.; Dec. Prod., 2. p. 637.
*Synonymes.* Sórbus domēstica *Lin. Sp.* 684.; *Pŷrus* domēstica *Smith* in *Eng. Bot.* t. 350., *Walr. Ann. Bot.* 145., *Don's Mill.* 2. p. 648.; the Whitty Pear Tree; Cormier, or Sorbier cultivé, *Fr.*; Speyerlingsbaum, or Sperberbaum, *Ger.*; Sorbo domestico, *Ital.*
*Engravings.* Eng. Bot., t. 350.; Gærtn. Fruct., 2. t. 87.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 792.

792. *P. Sórbus.*

*Spec. Char., &c.* Buds glabrous, glutinous, acuminate. Leaflets serrated, villose beneath, but becoming naked when old. Pome obovate, pear-shaped. (*Dec. Prod.*) A tree of the middle size. Europe, chiefly of the middle region; found also in some parts of Barbary, particularly in the neighbourhood of Algiers; and by some considered a native of Britain. Height 30 ft. to 60 ft. Flowers white; May. Fruit brown; October. Decaying leaves yellowish brown. Naked young wood grey, like that of the common mountain ash.

*Varieties.* In *Du Hamel* and the *Dictionnaire des Eaux et Forêts*, eight varieties of the true service are described; but in British gardens only the two following sorts are cultivated: —

♀ P. S. 2 *malifórmis* Lodd. Cat., la Corme-Pomme, *Fr.*, has apple-shaped fruit. Of this variety there are trees which bear abundantly in the Horticultural Society's Garden, and in the Hackney Arboretum.

♀ P. S. 3 *pyrifórmis* Lodd. Cat., la Corme-Poire, *Fr.*, has pear-shaped fruit; and of this, also, there are fruit-bearing trees in the places above referred to.

A tree, in foliage and general appearance, closely resembling the mountain ash; but attaining a larger size, and bearing much larger fruit, of a greenish brown colour when ripe. In France this tree attains the height of 50 or 60 feet: it requires two centuries before it reaches its full size; and lives to so great an age, that some specimens of it are believed to be upwards of 1000 years old. It grows with an erect trunk, which terminates in a large pyramidal head. This tree is readily known from the mountain ash, in winter, by

its buds, which are smooth and green, instead of being downy and black; in the beginning of summer, by its leaflets being broader, downy above, and also beneath; and, in autumn, by its pear or apple shaped fruit, which is four or five times the size of that of *P.* aucupària, and of a dull greenish brown colour. It is said to be 30 years before it comes into a bearing state when it is raised from the seed; but, when scions from fruit-bearing trees are grafted on seedling plants, or on the mountain ash, they come into bearing in a few years as in the case of other fruit trees. (See *Gard. Mag.*, iv. p. 487.) The wood of the true service is the hardest and the heaviest of all the indigenous woods, of Europe. It weighs, when dry, no less than 72 lb. 2 oz. per cubic foot. It has a compact fine grain, a reddish tinge, and takes a very high polish; but it must not be employed until it is thoroughly seasoned, as otherwise it is apt to twist and split. It is much sought after in France, by millwrights, for making cogs to wheels, rollers, cylinders, blocks and pulleys, spindles and axles; and for all those parts of machines which are subject to much friction, and require great strength and durability. In France, it is preferred to all other kinds of wood for making the screws to wine-presses. In France, the fruit, when beginning to decay, is brought to table; though it is not highly prized, and is more frequently eaten by the poor than the rich. In Britain, the tree is chiefly to be recommended as one of ornament and rarity. A good, free, deep, dry soil, and a sheltered situation, are essential, wherever it is attempted to grow this tree in Britain. From the specimens in the neighbourhood of London, it does not appear to suffer from the climate, after it has been five or six years planted; but it is rather difficult to establish young plants. Seeds may be procured in abundance from France; and from them stocks may be raised on which the best fruit-bearing varieties may be grafted. The true service may also be grafted on the pear, the mountain ash, the hawthorn, and other allied species. The graft should be made close to the ground, or even under it, on the root; and care should be taken to retard the scion previously to grafting it, in order that the stock may be somewhat in advance of it. On the whole, the operation requires to be performed with the greatest care; because this is one of the most difficult of all non-resinous trees to graft successfully. The plants at Messrs. Loddiges's ripen fruit every year, from the seeds of which numerous young plants have been raised.

### ✝ 33. *P.* LANUGINO'SA *Dec.* The woolly-*leaved* Service Tree.

*Identification.* Dec. Prod., 2. p. 637.; Don's Mill., 2. p. 646.
*Synonymes.* *P.* hybrida lanuginòsa *Hort.*; *S*órbus lanuginòsa *Kit.* in Litt., and *Lodd. Cat.*
*Engravings.* The plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 793. from a tree in the Horticultural Society's Garden.

*Spec. Char., &c.* Buds woolly. Leaflets serrated, woolly beneath. Petiole woolly. Pome globose. (*Dec. Prod.*) A fastigiate tree of the middle size. A hybrid, when and whence originated is uncertain. Height 20 ft. to 30 ft. Flowers white; May. Fruit small, like that of the mountain ash, but seldom coming to maturity.

The trees of this species in Loddiges's arboretum, and in the Horticultural Society's Garden, are very distinct from any other sort, and appear to be hybrids between *P.* pinnatífida, or perhaps *P. S*órbus, and the common mountain ash. The general form of the tree is fastigiate, with numerous parallel, rigid, upright shoots. The flowers and fruit resemble those of the mountain ash, but are smaller: the former are frequently abortive; and the latter, when it is produced, is generally without seeds. It is a robust, hardy, vigorous-growing tree, which comes early into leaf, and is well deserving of a place in collections. This species, and all the others belonging to the section *S*órbus, graft readily on the common hawthorn; and, as they make very handsome, small, round-headed trees, beautiful at every season of the year, common hedges might be grafted with them at regular distances, and the grafts would grow up, and become handsome standards.

793. *P.* lanuginòsa.

## ♃ 34. *P.* spu'ria *Dec.* The spurious Service Tree.

*Identification.* Dec. Prod., 2. p. 637.; Don's Mill., 2. p. 649.
*Synonymes.* *P.* hybrida *Mœnch Weiss.* t. 6. on the authority of *Willd. Sp.* 2. p. 1022.; Sórbus spùria *Pers. Syn.* 2. p. 39.; Mespilus sorbifòlia *Poir. Suppl.* 4. p. 72.; *P.* sorbifòlia *Bosc* and *Wats. Dend. Brit.* t. 53., but not of Smith; *P.* sambucifòlia *Cham.* and *Don's Mill.* 2. p. 648.
*Engravings.* Mœnch Weiss., t. 6., on the authority of Willd. Sp., 2. p. 1002.; Wats. Dend. Brit. t. 53.; Bot. Reg., t. 1196.; and our *fig.* 794.

794. *P.* spùria.

*Spec. Char., &c.* Leaflets ovate, crenate; 3 pairs, with an odd one, which is longer than the others: all are hairy beneath. Petiole gland-bearing upon the upper side. Styles 5. Intermediate, and perhaps a hybrid, between *P.* aucupària and *P.* arbutifòlia. (*Dec. Prod.*) A low tree, with rambling, slender, dark-coloured shoots, and fruit resembling that of *P.* arbutifòlia. Height 10 ft. to 20 ft. In cultivation in 1800. Flowers white May. Fruit small, black; ripe in September. Decaying leaves dark purplish red. Naked young wood purplish.

*Variety.*

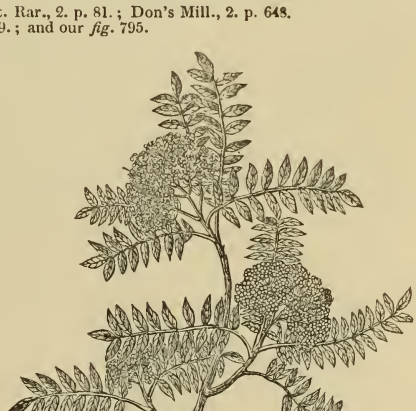
ϒ P. *s.* 2 *péndula* Hort., *S*órbus hýbrida péndula *Lodd. Cat.*, *P.* spùria *s*ambucifòlia *Hort. Brit.* (the plate of this variety in *Arb. Brit.*, 1st edit. vol. vi.) has pendulous shoots, and is a very distinct and most interesting kind. There are fine low trees of it in the Horticultural Society's Garden; and, if grafted 10 or 12 feet high, instead of only 3 or 4 feet, as it is there, it would form one of the most beautiful of pendulous trees. It is prolific in flowers, and dark purple fruit; and the leaves die off of an intensely dark purplish red. Every hawthorn hedge might be adorned with this tree by grafting.

Both the species and variety are very desirable small trees for their leaves, their flowers, and their fruit; they are readily propagated by grafting on the common thorn or mountain ash, and require the same soil as that species.

### ϒ 35. *P.* FOLIOLO'SA *Wall.* The leafy Mountain Ash.

*Identification.* Wall. Cat. p. 677.; Pl. Asiat. Rar., 2. p. 81.; Don's Mill., 2. p. 648.
*Engravings.* Wall. Pl. Asiat. Rar., 2. t. 189.; and our *fig.* 795.

*Spec. Char., &c.* Leaves pinnate, with 7—8 pairs of elliptic-lanceolate, mucronate leaflets, which are serrated at the apex, pubescent beneath. Cymes branched, terminal, pubescent. (*Don's Mill.*) A deciduous tree. Nepal, on mountains. Height 15 ft. to 20 ft. Introduced?. Flowers white; June. Pome small, obovate roundish, red; ripe Nov. This very desirable and probably quite hardy species, we believe, has not yet been introduced, but it doubtless will soon be so.



795. *P.* foliolòsa.

P. *hircìna* Wall. Cat. p. 675., and *Don's Mill.* ii. p. 648., is a native of Nepal, with pinnate leaves, and numerous leaflets, rusty beneath; and with red fruit, about the size of that of the common mountain ash.

## § vii. *Adenórachis* Dec.

*Sect. Char.* Petals spreading, each with a claw, and a concave limb. Styles 2—5. Pome globose. Leaves simple, the midrib bearing glands on its upper surface (which is the character expressed in the sectional name). Flowers in branched corymbs. — Deciduous shrubs, natives of North America; growing to the height of 4 or 5 feet, and prolific in flowers, followed by red, dark purple, or black, fruit. They are all readily propagated by division, by suckers, or by grafting on the common hawthorn.

This section is so unlike the others in habit and general appearance, that it would be much more convenient to have it as a distinct genus; say, *Arònia*, as it was before that genus was united with *Pỳrus*.

### ♣ 36. *P.* ARBUTIFO`LIA *L. fil.* The Arbutus-leaved Aronia.

*Identification.* Lin. fil. Suppl., 256., Ph. Sept. 1. p. 339.; Dec. Prod., 2. p. 637.; Don's Mill., 2. p. 649.

*Synonymes.* Cratæ'gus pyrifòlia *Lam. Dict.* 1. p. 83.; *Arònia pyrifòlia Pers. Syn.* 2. p. 39.; ?Cratæ'gus serràta *Poir. Suppl.* 1. p. 292.; *Méspilus arbutifòlia Schmidt Arb.* t. 86., *Mill. Dict.* t. 109.

*Engravings.* Schmidt Arb., t. 86.; and our *fig.* 796.

796. *P. arbutifòlia.*

*Spec. Char., &c.* Leaves obovate, lanceolate, acute, crenate, tomentose beneath, especially when young, the midrib in each glandulous above. Calyx tomentose. Pome dark red or purple. (*Dec. Prod.*) A deciduous shrub. North America, from Canada to Carolina, in low copses and swamps, common. Height 4 ft. to 6 ft. Introduced in 1700. Flowers white; May. Fruit dark red or black; ripe in September. Decaying leaves intensely dark red, or purplish black.

*Varieties.*

♣ P. a. 2 *intermèdia* Lindl. (Hort. Trans., vii. p. 229.; Don's Mill., ii. p. 649. and our *fig.* 798.) has the fruit globose and brown.

♣ P. a. 3 *serotina* Lindl. (Hort. Trans., l. c.; Don's Mill., l. c.) has the leaves shining above, and velvety beneath; and the fruit late, and party-coloured.

797. *P. arbutifòlia pùmila.*

798. *P. arbutifòlia intermèdia.*

♣ P. a. 4 *pùmila*, *Méspilus pùmila Lodd. Cat.* (Krause, t. 86.; and our *figs.* 797. and 799.), appears to be different from the two preceding varieties. It is a low plant, seldom exceeding 1 ft. or 18 in. in height.

and rooting at the joints. The fruit is intermediate in colour between *P. a*rbutifòlia and *P.* melanocárpa, being of a reddish black.

799. *P. a.* pùmila.

A very desirable shrub, frequent in collections, and known in the nurseries under the name of *Mé*spilus *a*rbutifòlia. It is prolific in flowers, which are produced in May, and which are followed by dark red or purple fruit, which, when not eaten by birds, will remain on the bushes till the following April or May, when the plant is again in flower. This species, whether as a bush, or grafted standard high on the common thorn, is highly ornamental in spring, when it is covered with its profusion of white flowers; in autumn, when its foliage assumes a deep red or purple; and in winter, after the leaves have dropped, when it is still enriched with its persistent fruit. It is propagated by layers, suckers, or seeds; but most frequently by suckers. There was, in 1835, a remarkably fine plant of this species, grafted standard high, in Knight's Exotic Nursery: it had attained the height of 10 or 12 feet; its branches hung down gracefully to the ground, not in one mass, but in varied tufts; and their appearance in autumn, when they were of an intensely purple red, was beyond expression interesting and beautiful.

### 37. *P.* (*A.*) MELANOCA'RPA *W.* The black-fruited Aronia.

*Identification.* Willd. Enum., 525.; Ph. Sept., 1. p. 339.; Dec. Prod., 2. p. 637.; Don's Mill., 2. p. 649.
*Synonymes.* *P.* arbutifòlia *β Willd. Sp.* 2. p. 1013.; *Ar*ònia *a*rbutifòlia *Pers. Syn.* 2. p. 39.; *Mé*spilus capitàta *Lodd.*; *M.* floribúnda *Lodd.*; *M.* pùbens *Lodd. Cat.* 1836.
*Engravings.* Schmidt Arb., t. 86.; Krause, t. 79.; and our *fig.* 800.

*Spec. Char., &c.* Leaves obovate-oblong, acuminate, serrated, glabrous beneath; the midrib glandulous above. Corymb more crowded than in *P. a*rbutifòlia. Calyx glabrous. Pome black. (*Dec. Prod.*) A deciduous shrub. North America, in Canada, in bogs, and on the high mountains of Carolina and Virginia; and judging from the plants in the Horticultural Society's Garden, and in the arboretum of Messrs. Loddiges, nothing more than a variety of *P. a*rbutifòlia. Height 4 ft. to 5 ft. Cultivated in 1700. Flowers white; May. Fruit large, black, resembling in taste those of *V*accínium pennsylvánicum; ripe in September.

800. *P.* (*a.*) melanocárpa.

*Variety.*

P. (a.) *m.* 2 *subpubéscens* Lindl. (Hort. Trans., vii. p. 232.; Don's Mill., ii. p. 649.), *P.* m. xanthocárpa *Hort.*, has the leaves, when young, tomentose beneath, but glabrous in the adult state.

*P.* (*a.*) melanocárpa or its variety, grafted standard high on the common hawthorn, forms a truly interesting pendulous, and at the same time picturesque, tree; and we can scarcely sufficiently recommend it for small shrubberies and suburban gardens. As its berries are not so greedily eaten by birds as those of most of the other *R*osàceæ, in mild winters they remain on till the following summer, and mix beautifully with the flowers in June. It grafts readily on the common hawthorn; and it, and all the other species and varieties belonging to the section Adenórachis, might be introduced into our common hedges by any countryman who could graft, thus rendering them truly ornamental.

### 38. *P.* (*A.*) FLORIBU'NDA *Lindl.* The abundant-flowered Aronia.

*Identification.* Lindl. Hort. Trans., 7. p. 230.; Lindl. Bot. Reg., 1006.; Don's Mill., 2. p. 649.
*Engravings.* Lindl. Bot. Reg., t. 1006.; and our *fig.* 801.

*Spec. Char., &c.* Branches cinereous, reclinate. Leaves oblong-lanceolate, acute, on long petioles, tomentose beneath, as well as the calyxes. Fruit spherical. Corymbs many-flowered, and longer than the leaves. (*Don's Mill.*) A shrub resembling the preceding species, but with more pendulous branches. Originated in gardens. Height 3 ft. to 4 ft. Cultivated in 1815. Flowers white; May. Fruit black; ripe in September.

801. *P.* (*a.*) floribúnda.

The leaves die off of a purplish red; and the whole plant, from the time of its leafing till it becomes naked, is highly interesting and ornamental, more especially when grafted standard high.

39. *P.* (*A.*) DEPRE'SSA *Lindl.* The depressed Aronia.

802. *P.* (*a.*) depréssa.

*Identification.* Lindl. Hort. Trans., 7. p. 230.; Don's Mill., 2. p. 649.
*Engraving.* Our *fig.* 802. from a specimen in Dr. Lindley's herbarium.

*Spec. Char., &c.* Stems humble, reclinate. Leaves oblong, obtuse, tomentose beneath, as well as the calyxes. Fruit pear-shaped. Corymbs length of the leaves. (*Don's Mill.*) A low shrub, with pendulous depressed branches. Of garden origin. Height 1 ft. to 2 ft. Cultivated in 1815. Flowers white; May. Fruit dark purple; ripe in September.

It is evidently a variety or modification of the preceding sort; and, from its profusion of flowers and fruit, and the purple hue of its foliage, it is highly ornamental.

40. *P.* (*A.*) PU'BENS *Lindl.* The downy-*branched* Aronia.

*Identification.* Lindl. Hort. Trans., 7. p. 232.; Don's Mill., 2. p. 649.
*Engraving.* Our *fig.* 803. from a living specimen in the Horticultural Society's Garden.

*Spec. Char., &c.* Stem erect. Branches pubescent. Leaves oblong or obovate, abruptly acuminated, smooth. Fruit spherical, and, as well as the calyxes, quite glabrous. Corymbs loose, and many-flowered. (*Don's Mill.*) A bushy shrub, with robust foliage, and shoots. Of garden origin. Height 4 ft. to 5 ft. Cultivated in 1810. Flowers white; May. Fruit round, large, dark purple; ripe in September.

This and the following kind have much of the robust foliage and habit of *P.* Chamæméspilus, and well deserve a place in collections.

803. *P.* (*a.*) púbens.

41. *P.* (*A.*) GRANDIFO'LIA *Lindl.* The large-leaved Aronia.

*Identification.* Lindl. Hort. Trans., 7. p. 232.; Lindl. Bot. Reg., 1154.; Don's Mill., 2. p. 649.
*Engravings.* Bot. Reg., t. 1154.; and our *figs.* 804. and 805.

*Spec. Char., &c.* Stem erect, and, as well as the branches, smoothish. Leaves

804. P. (a) grandifòlia.

oblong, or obovate, acute, glabrous. Fruit spherical, and, as well as the calyxes, glabrous. Corymbs few-flowered, coarctate. Fruit with a villous disk. (*Don's Mill.*) A bushy shrub. Of garden origin, probably a hybrid between *P. arbutifòlia* and *P.* Chamæméspilus. Height 4 ft. to 5 ft. Cultivated in 1810. Flowers white; May and June. Fruit dark purple; ripe Sept. Decaying leaves purple and yellow.

805. P. (a.) grandifòlia.

It bears a profusion of flowers, and dark purple fruit; and, on that account, and also on account of the purple tinge of its leaves, it is highly ornamental. Dr. Lindley considers it as the most valuable species of this division of *Pyrus* that has hitherto been described.

## § viii. *Chamæméspilus* Dec.

*Sect. Char.* Petals upright, conniving, concave. Styles 2. Pome ovate. Leaves simple, glandless. Flowers in a capitate corymb. (*Dec. Prod.*)

### ♃ 42. *P.* Chamæme'spilus *Lindl.* The dwarf Medlar.

*Identification.* Lindl. in Lin. Soc. Trans., 13. p. 98.; Dec. Prod., 2. p. 637.; Don's Mill., 2. p. 649.
*Synonymes.* Cratæ'gus Chamæméspilus *Jacq. Austr.* t. 231.; *Méspilus* Chamæméspilus *Lin. Sp.* 685.; *Sórbus* Chamæméspilus *Crantz Austr.* 83. t. 1. f. 3.; the bastard Quince; niedriger Mispelbaum, *Ger.*; Camenespolo, *Ital.*
*Engravings.* Jacq. Austr., t. 231.; Crantz Austr., 83. t. 1. f. 3.; and our *fig.* 806.

*Spec. Char., &c.* Leaves ovate, serrated, glabrous; except bearing on the under surface, when young, down, which is deciduous. (*Dec. Prod.*) A stiff-branched shrub. Europe, in rough mountainous places. Height 5 ft. to 6 ft. Introduced in 1683. Flowers white, tinted with rose; May and June. Fruit round, orange-coloured, or red; ripe in September.

806. P. Chamæméspilus.

This species forms a compact bush, and flowers and fruits in the greatest abundance, and hence it merits to be much more extensively introduced into collections than it appears to have hitherto been. It grafts beautifully on the common hawthorn; and, indeed, whoever has a quickset hedge may have a collection of all the species of this genus.

*Other Species of Pyrus.*—P. *alnifòlia* Lindl. in Lin. Trans. xiii. p. 98. Leaves glabrous, roundish, feather-nerved, and rather glaucous beneath. Fruit black and sugary. North America, at Fort Mandon.—P. *tomentòsa* Dec. Prod. i. p. 637.; *Málus* tomentòsa *Dum. Cours.* ed. 2. v. p. 438. Allied to *P.* baccàta; but the flowers, as well as fruit, are unknown. Siberia.—P. *rubicúnda* Hoffmans. (*Verz.*, 1824, p. 192.; *Dec. Prod.*, ii. p. 637.) Leaves oval-acuminate. Fruit partly red and partly yellow. Native country unknown.

## Genus XXI.

### CYDO'NIA *Tourn.* The Quince Tree. *Lin. Syst.* Icosándria Di-Pentagýnia.

*Identification.* Tourn. Inst., 632. t. 435.; Dec. Prod., 2. p. 638.; Don's Mill., 2. p. 650.
*Synonymes.* *Pỳrus* sp. *Lin.*; Coignassier, *Fr.*; Quittenbaum, *Ger.*; Cotogno, *Ital.*
*Derivation.* From its native place, *Cydon*, in Candia.

*Gen. Char.* *Calyx* 5-cleft. *Petals* orbicular. *Stamens* erect. *Styles* 5. *Pome* closed, 5-celled; cells cartilaginous, many-seeded. *Seeds* covered with mucilaginous pulp. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous; serrated or entire. *Flowers* large, solitary, or few together in a kind of umbel. — Low deciduous trees or shrubs, natives of Europe and Asia; easily propagated by layers, or by grafting on the common thorn. Common soil, rather moist than dry.

ϒ 1. *C.* vulga'ris *Pers.* The common Quince Tree.

*Identification.* Pers. Syn., 2. p. 40.; Dec. Prod., 2. p. 638.; Don's Mill., 2. p. 650.
*Synonymes.* *Pỳrus Cydònia Lin. Sp.* 687., *Jacq. Austr.* t. 342.; *C.* europæ'a *Sav. Alb. Tosc.* 1. p. 90.
*Engravings.* Jacq. Austr., t. 342.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 807.

807. *Cydonia vulgàris.*

*Spec. Char., &c.* Leaves ovate, obtuse at the base, entire, tomentose beneath. Calyx tomentose; its lobes serrulated, and a little leafy. Stamens in one row. (*Dec. Prod.*) A low tree. South of Europe, in rocky places and hedges; and by some considered indigenous in Britain. Height 15 ft. to 20 ft. Cultivated in 1573. Flowers white; May and June. Fruit large, of a fine orange yellow; ripe in November.

*Varieties.*

ϒ C. *v.* 1 *pyrifórmis* Hort. — Fruit pear-shaped.
ϒ C. *v.* 2 *malifórmis* Hort. — Fruit apple-shaped.

ϒ C. *v.* 3 *lusitánica* Du Ham. — Broader leaves, and larger fruit, than the two preceding kinds; and, being of more vigorous growth, it is better adapted for being used as a stock for pears.

The quince is a low tree, with a crooked stem and tortuous rambling branches. It is of moderately rapid growth when young; attaining, in four or five years, the height of 6 or 8 feet; and, in ten or twelve years, the height of 15 feet: after which it continues to increase in width of head only; being very seldom found higher than 15 or 20 feet.

The quince prefers a moist free soil, near water, and a situation open, but sheltered. In dry soil, neither the tree nor the fruit attains any size; and, in situations exposed to high winds, the fruit will not remain on the tree till ripe. Layers.

### ϒ 2. *C.* SINE'NSIS *Thouin.* The China Quince Tree.

*Identification.* Thouin Ann. Mus., 19. p. 145. t. 8. and 9.; Dec. Prod., 2. p. 638.; Don's Mill., 2. p. 650.
*Synonyme.* *Pyrus sinénsis Poir. Suppl.* 4. p. 452.
*Engravings.* Ann. Mus., 19. t. 8. and 9.; the plate of this tree in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 808.

808. *Cydònia sinénsis.*

*Spec. Char., &c.* Leaves ovate, acuminated at both ends, acutely serrated, when young a little villose, and when adult glabrous. Stipules oblong linear, serrated; the teeth glanded. Flowers rosy, becoming red. Calyx glabrous; its lobes serrulated, and a little leafy. Stamens in one row. Fruit egg-shaped, large, hard, almost juiceless, and greenish. Seeds in each cell about 30, with many abortive. (*Dec. Prod.*) A very handsome low tree, very distinct in appearance from the common quince, from the shining surface of its leaves, and the regular serratures of their margins. China. Height in China 20 ft.; in England 10 ft. to 12 ft. Introduced in 1818. Flowers white or pale red; May and June. Fruit egg-shaped, greenish, hard, and nearly dry; ripe in October.

### 3. *C.* JAPO'NICA *Pers.* The Japan Quince Tree.

*Identification.* Pers. Syn., 2. p. 40.; Dec. Prod., 2. p. 638.; Don's Mill., 2. p. 650.
*Synonymes.* ? *Pyrus* japónica *Thunb. Fl. Jap.* 207., and *Bot. Mag.* t. 692.; Chænomèles japónica *Lindl. Lin. Trans.* 13. p. 98.
*Engravings.* Bot. Mag., t. 692.; Morris Fl. Consp., t. 1.; our *fig.* 809.; and *fig.* 810. showing the fruit.

809. *C.* japónica.

*Spec. Char., &c.* Leaves oval, somewhat cuneated, crenately serrated, glabrous upon both surfaces. Stipules kidney-shaped, and serrated. Flowers mostly 2—3 together, rarely solitary. Calyx glabrous; its lobes short, obtuse, entire. Stamens in two rows. (*Dec. Prod.*) A rambling deciduous shrub. Japan and China. Height 5 ft. to 6 ft. Introd. in 1815. Flowers scarlet; produced the greater part of the year. Fruit green, very fragrant, but not eatable; ripe in Oct.

810. *C.* japónica.

*Varieties.*

- C. *j.* 2 *flòre álbo* has cream-coloured, or very pale red, flowers, and forms a very distinct kind when in blossom.
- C. *j.* 3 *fl. semi-plèno* has red flowers, somewhat semidouble. There are plants of this kind in the Kensington Nursery.

One of the most desirable deciduous shrubs in cultivation, whether as a bush in the open lawn, trained against a wall, or treated as an ornamental hedge plant. It has also been trained up with a single stem as a standard; and, in this character, its pendent branches and numerous flowers, give it a rich and striking appearance, especially in early spring. It is difficult to unite with its congeners by grafting; but, if it could be grafted standard high on the pear, the hawthorn, or even on the common quince, it would form a most delightful little tree. Readily propagated by layers or suckers, and it also grows by cuttings.

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## ORDER XXVII. CALYCANTHA'CEÆ.

*ORD. CHAR.* *Calyx* coloured, many-parted. *Segments* in many series, unequal. *Corolla* none. *Stamens* indefinite, in several series. *Anthers* adnate, extrorse. *Styles* exserted. *Carpels* 1-seeded, enclosed within the fleshy tube of the calyx. *Albumen* none. Agrees with *Rosàceæ* in fruit, and *Granàteæ* in leaves, but differs from both in the absence of petals (*G. Don.*)

*Leaves* simple, opposite, exstipulate, deciduous; feather-nerved, rough. *Flowers* axillary. — Deciduous shrubs, natives of Asia and America.

CALYCA'NTHUS. Stamens 12, deciduous.
CHIMONA'NTHUS. Stamens 5, persistent.

### GENUS I.

### CALYCA'NTHUS *Lindl.* THE CALYCANTHUS, *or* AMERICAN ALLSPICE. *Lin. Syst.* Icosándria Polygýnia.

*Identification.* Lindl. in Bot. Reg., t. 404.; Nees Nov. Act. Nat. Cur. Bonn., 11. p. 107.; Dec. Prod., 3. p. 2.; Don's Mill., 2. p. 652.

*Synonymes.* Calycánthi sp. *Lin.*, *Lam.*, *Willd.*; Büttnèr*ia* Du Ham. Arb., 1. p. 114., not of Lin.; Beurrèr*ia* Ehret Pict. t. 13.; Bastèr*ia* Adans. Fam. 2. p. 294.; Pompadoúr*a* Buchoz; Calycanthe, *Fr.*; Gewürzstrauch (spice shrub), Kelch Blume, *Ger.*; Calicanto, *Ital.*
*Derivation.* From *kalux*, a calyx, and *anthos*, a flower; the calyx is coloured, and resembles a corolla. The name allspice was given to it by the inhabitants of Carolina, from the strong aromatic smell of the bark.

*Gen. Char.* *Lobes* of calyx disposed in many series, imbricate, lanceolate, all somewhat coriaceous and coloured. *Stamens* unequal, deciduous, 12 outer ones fertile. *Achenia* numerous. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous; entire, coriaceous. *Flowers* axillary, rising after the leaves, of a lurid purple colour, and sweet-scented, as well as the bark and leaves.

Deciduous shrubs, natives of North America; propagated, in England, by layers. DeCandolle states that the removal of the terminal leaf bud of a shoot causes the production of two new flower buds; and that by this practice a succession of flowers, during the whole summer, may be obtained when desirable. (*Dec. Prod.*)

1. C. FLO'RIDUS *L.* The flowery Calycanthus, *or Carolina Allspice.*

*Identification.* Lin. Sp., 718.; Nutt. Gen. Amer., 1. p. 312.; Dec. Prod., 3. p. 2.; Don's Mill., 2. p. 652.
*Synonymes.* C. stérilis *Walt. Car.* 151.; sweet-scented Shrub, *in Carolina*; common American Allspice; Calycanthe de la Caroline, *Fr.*; Carolinische Kelch Blume, *Ger.*; Pompadur, *Ital.*
*Engravings.* Bot. Mag., t. 503.; Du Ham. Arb., 1. t. 45.; Lam. Ill., t. 445. f. 1.; Guimp. Abb. Holz., t. 4.; our *fig.* 810.; and *fig.* 811. showing the fruit.

811. Calycánthus flóridus.

*Spec. Char., &c.* Wood of the trunk, and especially of the root, intensely camphor-scented. Branches spreading; branchlets tomentose. Leaves oval, tomentose beneath. Flowers mostly abortive. Fruit top-shaped. (*Dec. Prod.*) A dense orbiculate bush. Carolina, on the shaded banks of rivulets. Height 6 ft. to 8 ft.

812. C. flóridus.

Introduced in 1726. Flowers dusky, purple, scented; May to August. Fruit brown, rarely seen in England. General aspect of the foliage, in summer, dark brownish green. Decaying leaves bright yellow. Naked young wood dark brown.

*Varieties.* DeCandolle gives two forms of this species: —

- *C. f.* 1 *oblóngus*, leaves oblong (*Ait. Hort. Kew.*, ed. 2., 3. p. 282.); and
- *C. f.* 2 *ovàtus*, leaves roundishly ovate (*Ait. Hort. Kew.*, ed. 2., 3. p. 282.).

The following varieties are in Loddiges's *Catalogue* for 1836; and plants of most of them are in their arboretum, and in that of the Horticultural Society: —

- *C. f.* 3 *asplenifòlius* has cut leaves.
- *C. f.* 4 *fèrax* has fertile flowers.
- *C. f.* 5 *glaúcus* has leaves somewhat glaucous.
- *C. f.* 6 *inodòrus* has flowers nearly scentless.
- *C. f.* 7 *longifòlius* has elongated leaves.
- *C. f.* 8 *variegàtus* has variegated leaves.

The flowers grow singly on short peduncles at the extremity of the branches; they have two series of narrow thick sepals, which spread open, and turn inward at the top, like those of the anemone or clematis. It thrives

best in a light, rich, sandy soil, kept rather moist, and in a shady situation. The varieties differ very slightly from each other.

2. C. (f.) GLAU'CUS *Willd.* The glaucous-*leaved* Calycanthus, *or fertile-flowered American Allspice.*

*Identification.* Willd. Enum., 559.; Pursh Fl. Sept. Amer., p. 357.; Dec. Prod., 3. p. 2.
*Synonyme.* C. fértilis *Walt. Car.* 151., *Lindl. Bot. Reg.* t. 404., *Guimp. Abb. Holz.* t. 5., *Don's Mill.* 2. p. 652.
*Engravings.* Bot. Reg., t. 404.; Guimp. Abb. Holz., t. 5.; and our *fig.* 813.

813. C. (f.) glaúcus.

*Spec. Char., &c.* Branches spreading. Leaves ovate-lanceolate, acuminate, glaucous beneath, pubescent. Flowers less odorous than those of C. flóridus. (*Dec. Prod.*) A dense orbiculate bush. Carolina, on mountains. Height 6 ft. to 8 ft. Introduced in 1726. Flowers lurid purple; May to August. Fruit, leaves, and young wood as in the preceding species.

*Variety.*

*C. g.* 2 *oblongifòlius* Nutt. Gen. Amer. i. p. 312., Dec. Prod. iii. p. 2. C. oblongifòlius *Hort. Brit.*—Leaves ovate-lanceolate, elongated. A native of North Carolina, on mountains. (*Dec. Prod.*, iii. p. 2.)

Closely resembling C. flóridus in general appearance; and requiring the same soil and culture. According to Pursh, the flowers are like those of C. flóridus; but their scent is not so agreeable, and is more faint. Whether there is much difference between this sort and C. f. 5 glaúcus, we have not had an opportunity of ascertaining; the plant in Messrs. Loddiges's arboretum not having flowered. We have therefore retained the description of this kind as a species, in deference to Pursh, DeCandolle, and G. Don, though we strongly suspect that they are identical.

3. C. (f.) LÆVIGA'TUS *Willd.* The glabrous-*leaved* Calycanthus, *or American Allspice.*

*Identification.* Willd. Enum., 559.; Willd. Hort. Berol., t. 80.; Pursh Fl. Sept. Amer., p. 358.; Nutt. Gen. Amer., 1. p. 312.; Dec. Prod., 3. p. 2.; Don's Mill., 2. p. 652.
*Synonymes.* C. fèrax *Michx. Fl. Bor. Amer.* 1. p. 305.; C. pennsylvánicus *Lodd. Cat.*
*Engravings.* Bot. Reg., t. 481.; and our *fig.* 814.

814 C. (f.) lævigàtus.

*Spec. Char., &c.* Branches strictly upright. Leaves oblong or ovate, and gradually acuminated, slightly wrinkled; the upper surface rough to the touch, the under one glabrous and green. (*Dec. Prod.*) A dense orbiculate bush. Pennsylvania, Virginia and Carolina, on mountains. Height 3 ft. to 5 ft. Introduced in 1806, and resembling the two preceding sorts in appearance and culture, but with the leaves more pointed. Very probably the C. f. 4 fèrax of the preceding page.

## GENUS II.

CHIMONA'NTHUS *Lindl.* THE CHIMONANTHUS, *or* WINTER-FLOWER. *Lin. Syst.* Icosándria Polygýnia.

*Identification.* Lindl. Bot. Reg., t. 404. and 451.; Dec. Prod., 3. p. 2.; Don's Mill., 2. p 652.

*Synonymes.* Meràtia Nees Act. Soc. Nat. Bonn. 11. p. 107.; Calycánthi sp. *Linn.*
*Derivation.* From *cheimōn*, winter, and *anthos*, a flower; in allusion to the season of its flowering.

*Gen. Char.* *Lobes* of calyx imbricate, oval, obtuse; outer ones in the form of bracteas; inner ones larger, and appearing like a corolla. *Stamens* nearly equal, permanent, the five outer ones fertile, connate at the base. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous; entire. *Flowers* rising before the leaves, in the axils of the leaves of the preceding year; very sweet-scented; yellowish, but purplish inside. Bark and leaves without scent.

A deciduous shrub, a native of Japan; remarkable for the fragrance of its flowers, which are produced from December till March, even in the open garden, in the neighbourhood of London, and more especially if the plant is trained against a wall. The blossoms are produced singly, in the axils of the leaves, on the shoots of the preceding year, and also on spurs proceeding from the old wood. The soil, culture, &c., are the same as for Calycánthus.

1. C. FRA`GRANS *Lindl.* The fragrant-*flowered* Chimonanthus.

*Identification.* Lindl. Bot. Reg., t. 404. 451.; Dec. Prod., 3. p. 2.; Don's Mill., 2. p. 652.
*Synonymes.* Calycánthus præ'cox *Lin. Sp.* 1718., *Ait. Hort. Kew.* ed. 1. vol. 2. p. 220. t. 10., *Curt. Bot. Mag.* t. 466., *Lam. Ill.* t. 445. t. 2.; Meràtia fràgrans *Nees Act. Soc. Nat. Bonn.* 11. p. 107.; O'bai, or Rôbai, *Kæmpf. Amœn.* 879. ic.; the Winter-Flower; Calycante de Japon, *Fr.*; Japanische Kelch Blume, *Ger.*
*Engravings.* Kæmpf. Amœn. ic.; Ait. Hort. Kew., ed. 1. vol. ii. t. 10.; Bot. Mag., t. 466.; Lam. Ill., t. 445. t. 2.; and our *fig.* 815.

*Spec. Char., &c.* Bark and leaves scentless. Flowers protruded before the leaves, solitary in the old axils of leaves, extremely odorous, yellowish, and purple within. Fruit flask-shaped, or thicker above the base, and in the upper part tapered into a cylindrical neck. (*Dec. Prod.*) A deciduous shrub. Japan. Height 6 ft. to 8 ft. as a bush, twice that height when trained against a wall. Introduced in 1776. Flowers yellowish and purple within; December to March. Fruit flask-shaped. Decaying leaves greenish. Naked young wood light grey.

815. C. fràgrans.

816. C. fràgrans grandiflòrus.

*Varieties.*

- *C. f.* 2 *grandiflòrus* Lindl. Bot. Reg. t. 451.; and our *fig.* 816.— Flowers larger, and more spreading. Fruit oblong, tapered at the base. (*Dec. Prod.*)
- *C. f.* 3 *lùteus* Hort. has the flowers yellow both inside and outside.
- *C. f.* 4 *parviflòrus* Hort.—A distinct late-flowering variety. Plants in the Horticultural Society's Garden.

The flowers, which are produced in the greatest abundance from November till March (as the name, winter-flower, implies), and which are delightfully and refreshingly fragrant, scent the air to a considerable distance round the tree. It is grown in most choice gardens for its flowers; a few of which are gathered daily, and placed in the drawingroom or boudoir, in the same manner as violets. The plant is generally propagated by layers; but it frequently produces seeds, from which many plants have been raised. The variety C. f. grandiflòrus has the flowers rather less fragrant than the species, but they are much more ornamental. No garden whatever ought to be without this shrub. North of London, it deserves a wall as much as any fruit tree; at least, judging from the measure of enjoyment which it is calculated to afford: and,

south of London, it may be planted as a standard bush on the open lawn, or in the shrubbery.

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## Order XXVIII. GRANATA'CEÆ.

*Ord. Char.* *Calyx* 5—7-cleft, tube turbinate, limb tubular ; æstivation valvate. *Petals* 5—7. *Stamens* indefinite, free. *Style* filiform. *Stigma* capitate. *Fruit* large, spherical, divided horizontally into two compartments, lower part 3-celled; upper part 5—9-celled. *Seeds* numerous, covered with pellucid baccate pulp. *Albumen* wanting. Differs from *Myrtàceæ* in the leaves being without dots. (*G. Don.*)

*Leaves* simple, opposite or alternate, exstipulate, deciduous; lanceolate, entire. *Flowers* terminal, scarlet. — Shrubs or low trees, natives of Africa.

### Genus I.

PU'NICA *Tourn.* The Pomegranate Tree. *Lin. Syst.* Icosándria Monogýnia.

*Identification.* Tourn. Inst., t. 401.; Dec. Prod., 3. p. 3. ; Don's Mill., 2. p. 653.
*Synonymes.* The Carthaginian Apple ; Grenadier, *Fr.* ; Granate, *Ger.* ; Melograno, *Ital* ; Granados, *Span.*
*Derivation.* Pùnica is said, in the *Nouveau Du Hamel*, to be derived either from *puniceus*, scarlet, in allusion to the scarlet colour of the flowers ; or from the same word, or *Punicus*, both signifying "of Carthage ;" near which city, Pliny tells us, it was first found.

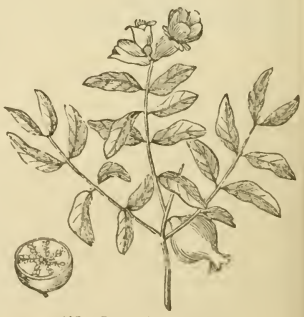
*Gen. Char.* Same as that of the order.

*Leaves* simple, opposite, sometimes whorled or alternate, exstipulate, deciduous ; oblong, entire. *Flowers* terminal, scarlet, with numerous stamens. — Low deciduous trees or shrubs, indigenous to Africa, and naturalised in the South of Europe.

♃ 1. *P.* Granatum *L.* The *common* Pomegranate Tree.

*Identification.* Lin. Sp., 676. ; Dec. Prod., 3. p. 3. ; Don's Mill., 2. p. 653.
*Engravings.* Bot Mag., t. 1832. ; and our *fig.* 817.

*Spec. Char., &c.* Stem arboreous. Leaf lanceolate. (*Dec. Prod.*) A deciduous tree. Mauritania, whence it may have migrated into the South Europe, where it is now perfectly indigenous. Height, in France and Italy, 15 ft. to 30 ft. ; in England generally trained against a wall, where it attains double that height when there is room. Introduced in 1548. Flowers scarlet; June to September. Fruit globose, in warm seasons sometimes ripened in November.



817 *P.* Granàtum rùbrum.

*Varieties.*

♃ P. G. 1 *rùbrum* Dec. Prod. iii. p. 3. (Trew Ehret, t. 71. f. 1. ; Poit. et Turp. Arbr. Fr., 22. ; Schkuhr. Handb., t. 131. *b.* ; Sims Bot. Mag., t. 1832. ; and our *fig.* 817.) has the flowers red ; pulp of fruit reddish. Wild in Mauritania and the South of Europe, and enduring even the coldest winters. (*Dec. Prod.*, iii. p. 3.)

- P. G. 2 *rùbrum flòre plèno* Trew Ehret t. 71. f. 2. has double red flowers. It is common in gardens, and is a little more impatient of cold than the preceding variety. (*Dec. Prod.*, iii. p. 4.)
- P. G. 3 *albéscens* Dec. Prod. iii. p. 4., Andr. Bot. Rep. t. 16.— Petals white. Calyx slightly yellowish. Pulp of the fruit of a pale red. It is cultivated in gardens, and is rather more tender than *P. G.* rùbrum. (*Dec. Prod.*, iii. p. 4.)
- P. G. 4 *albéscens flòre plèno* Dec. has double flowers, which are nearly white. It is cultivated in gardens, and is the tenderest of all the forms of the species. (*Dec. Prod.*, iii. p. 4.)
- P. G. 5 *flàvum* Hort. has the flowers yellow, but is rare in gardens.

A tree, in magnitude and ligneous character, bearing considerable resemblance to the common hawthorn. In the South of France, and in Spain and Italy, it grows to the height of 18 or 20 feet; forming a very branchy twiggy tree, seldom found with a clear stem, unless it has been pruned up. In a wild state, about Marseilles, it forms a thorny bush; but, in the gardens about Nice and Genoa, it is a very handsome small tree, much admired both for its flowers and its fruit. In the South of Europe, the pomegranate is cultivated for its fruit; and, in some places, as a hedge plant. It is also grown as an ornamental tree; the stem being trained to the height of 6 or 8 feet, and the head afterwards allowed to spread, and droop down on every side. The single wild pomegranate will grow in almost any soil; but the double-flowered varieties, and the species when it is intended to bear fruit, require a rich free soil. Whether the object be flowers or fruit, the head of the tree should be thinned out, and so cut as to multiply, as much as possible, short slender shoots; on the points of which alone the flowers are produced. The plant is easily propagated by cuttings of the shoots or of the roots, by layers, or by grafting one sort on another. The double variety grafted on the single is more productive of flowers than when raised by cuttings or layers; and in good rich soil, judiciously supplied with water, it will continue producing its large scarlet flowers for four or five months. When the plant is raised from seeds, they ought to be sown immediately on being removed from the fruit; because they very soon lose their vital powers.

2. *P.* (*G.*) NA'NA *L.* The dwarf Pomegranate.

*Identification.* Lin. Sp., 676.; Sims Bot. Mag., t. 634.; Dec. Prod., 3. p. 4.; Don's Mill., 2. p. 653.
*Synonymes.* *P.* americàna nàna *Tourn.*; *P.* Granàtum nànum *Pers.*
*Engravings.* Bot. Mag., t. 634.; Trew Ehret, t. 71. f. 3.; and our *fig.* 818.

*Spec. Char., &c.* Stem shrubby. Leaf linear. (*Dec. Prod.*) A low deciduous bush; said to be a native of the Caribee Islands and of South America, about Demerara. Introduced in 1723. Flowers red; June to September.

Without doubt, only a variety of *P.* Granàtum.

818. *P. G.*) nàna.

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## ORDER XXIX. TAMARICA'CEÆ.

ORD. CHAR. *Calyx* 4—5-parted. *Petals* 4—5. *Stamens* 4—5 or 8—10, free or monadelphous. *Style* short. *Stigmas* 3. *Capsule* trigonal, 3-valved, 1-celled, many-seeded. *Placentas* 3 at base of cell, or along the middle of the valves. *Seeds* comose at apex. *Albumen* none. Near Frankeniàceæ in Thalamiflòræ.

*Leaves* simple, alternate, exstipulate, deciduous or sub-evergreen; linear-lanceolate. *Flowers* small.—Shrubs. Natives of Europe, Asia, and Africa; of easy culture in light sandy soil. The genera in British gardens are two, which are thus contradistinguished:—

*Ta'marix.* Stamens 4—5. Hairs on the seeds simple.
Myrica'ria. Stamens 10. Hairs on the seeds feathery.

## Genus I.

### *TA'MARIX Desv.* The Tamarisk. *Lin. Syst.* Pentándria Trigýnia.

*Identification.* Desv. Ann. Sc. Nat., 4. p. 348.; Dec. Prod., 3. p. 95.; Don's Mill., 2. p. 725.
*Synonymes.* The species of *Tamarix* of authors that have 4 stamens and 5 stamens; Tamaris, *Fr.*; Tamarisken, *Ger.*; Tamarice, Ital.
*Derivation.* So called, according to some, from the plants growing on the banks of the river *Tamaras*, now Tambra, on the borders of the Pyrenees; or, according to others, from the Hebrew word *tamaris*, cleansing, on account of their branches being used for brooms.

*Gen. Char. Calyx* 4—5-parted. *Petals* 4—5. *Stamens* 4—5, alternating with the petals, almost free. *Ovarium* tapering to the apex. *Stigmas* 3, long, divaricate, glandular, and oblique at the apex. *Seeds* erect, inserted nearly at the base of the valves; tufted; tuft composed of numerous simple hairs arising from the apex. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous or sub-evergreen; linear, stem-clasping, very small; adult ones diaphanous at the apex. *Flowers* in spikes, and usually disposed in panicles, small, red, seldom white.

Tall shrubs, natives of Europe, the North of Africa, and the West of Asia; sub-evergreen in British gardens; and highly valuable, as standing the sea breeze in situations where few other ligneous plants, and no other flowering shrubs, will grow. The whole plant is very bitter, and the young shoots were formerly employed as a tonic, and as a substitute for hops in brewing beer.

#### 1. *T.* ga'llica *L.* The French Tamarisk.

*Identification.* Lin. Sp., 386.; Mill. Ic.; Dec. Prod., 3. p. 96.; Don's Mill., 2. p. 726.
*Synonymes. T.* narbonénsis *Lob. Ic.* 2. t. 218.; *Tamariscus* gállicus *All.*; *Tamariscus* pentándrus *Lam. Fl. Fr.*, not of Pall.; Mirice, *Ital.*
*Engravings.* N. Du Ham., vol. vii. t. 59.; and our *fig.* 819.

*Spec. Char., &c.* Glabrous, glaucous. Leaves minute, clasping the stem or branch, adpressed, acute. Spikes of flowers lateral, somewhat panicled, slender, 5 times longer than broad. (*Dec. Prod.*) A sub-evergreen shrub, frequent in sandy places in the middle and South of Europe, and in the South of England. Height 5 ft. to 10 ft., sometimes twice that height. Flowers pinkish; May to October.

819. *T.* gállica.

*Varieties.* In the *Linnæa*, 2. p. 267, 6 varieties are described, for which we refer to our first edition, as the plants are not in cultivation in Britain, and indeed appear to us not worth keeping distinct.

*T.* gállica prefers a deep, free, sandy soil; and will only attain a large size when it is in such a soil, and supplied with moisture from the proximity of some river, or other source of water. It is valuable as thriving on the sea shore, where few other shrubs will grow; as being sub-evergreen; and as flowering late in the season, and for several months together. It is readily propagated by cuttings, planted in autumn, in a sandy soil, with a northern exposure. In favourable situations in France and the South of Europe, it grows to the height of 15 or 20 feet; and there are instances, both in Britain and on the Continent, of its growing as high as 30 ft., and this, we suppose, has given rise to the alleged variety, *T.* g. arbòrea. In the South of Russia, and in Tartary, the species assumes a great variety of forms according to the soil and situation; the tops of the dwarf plants are there eaten by sheep, and the stems of the larger ones used as handles for whips.

## GENUS II.

### MYRICA'RIA *Desv.* THE MYRICARIA. *Lin. Syst.* Monadélphia Decándria.

*Identification.* Desv. Ann. Sc. Nat., 4. p. 349.; Dec. Prod., 3. p. 97.; Don's Mill., 2. p. 727.
*Synonymes.* The species of Tāmarix of authors that have monadelphous stamens.
*Derivation.* From *murikē*, the Greek name of the tamarisk, derived from *murō*, to flow; the species being generally found on the banks of running streams; or from the flowing of the sap as manna.

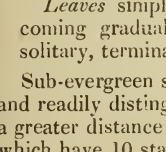
*Gen. Char.* *Calyx* 5-parted. *Petals* 5. *Stamens* 10, alternate ones shorter than the rest; filaments monadelphous from the base to about the middle. *Stigmas* 3, sessile, in a head. *Seeds* inserted in a line along the middle of the valves, tufted at one end; hairs of tuft feathery. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; linear or oblong, becoming gradually broader towards the base, sessile. *Flowers* in simple, solitary, terminal spikes.

Sub-evergreen shrubs, not growing to half the height of Tāmarix gállica, and readily distinguished from it by their longer and thicker leaves, placed at a greater distance from one another on the stem; and by their larger flowers, which have 10 stamens. Propagation and culture as in the preceding genus.

1. M. GERMA'NICA *Desv.* The German Myricaria, *or German Tamarisk.*

*Identification.* Desv. Ann. Sc. Nat., 4. p. 349.; Dec. Prod., 3. p. 97.; Don's Mill., 2. p. 727.
*Synonymes.* Tāmarix germánica *Lin. Sp.* 386.; Tamaríscus decándrus *Lam. Fl. Fr.*; Tāmarix decándra *Mœnch*; Tamaríscus germánicus *Lob. Ic.* 2. t. 218.; Tamaris d'Allemagne, *Fr.*; Deutschen Tamarisken, *Ger.*; Tamarigia piccola, *Ital.*
*Engravings.* Mill. Ic., t. 262. f. 2.; and our *fig.* 820.



820. M. germánica.

*Spec. Char., &c.* Fruticulose, glabrous. Leaves linear-lanceolate, sessile. Spikes of flowers terminal, solitary. Bracteas longer than the pedicels. Capsules ascending. (*Dec. Prod.*) An evergreen shrub, with upright slender branches. Europe, in inundated sandy places, and the banks of rivers; and in Asia, on Caucasus, and the Himalayas. Height 6 ft. to 8 ft. Introduced in 1582. Flowers pinkish; June to September.

2. M. DAHU'RICA *Dec.* The Dahurian Myricaria.

*Identification.* Dec. Prod., 3. p. 98.; Don's Mill., 3. p. 728.
*Synonyme.* Tāmarix dahùrica *Willd. Act. Berol.* No. 16
*Engraving.* Our *fig.* 821. from a specimen in Dr. Lindley's herbarium.

*Spec. Char., &c.* Shrubby, glabrous. Leaves linear, almost oblong, sessile, slightly spreading. Spikes of flowers lateral, ovate-cylindrical, thick, blunt, with scales at the base. Bracteas extending as far as the flowers. (*Dec. Prod.*) Siberia, beyond the Baikal; and in Dahuria. Introduced in 1816, and closely resembling the preceding species.

821. M. dahùrica.

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## ORDER XXX. PHILADELPHA'CEÆ.

*ORD. CHAR.* *Calyx* tube turbinate, limb 4—10-parted. *Petals* 4—10, æstivation convolutely imbricate. *Stamens* numerous. *Styles* distinct or combined. *Stigmas* numerous. *Capsule* half inferior, 10-celled, many-seeded.

*Seeds* subulate, heaped at the angles of the cells; each furnished with a loose membranous aril. *Albumen* fleshy. Differs from *Myrtàceæ* in the arillate albuminous seed, and in the toothed dotless leaves. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, deciduous; toothed, serrated, or sometimes entire. *Flowers* large, white, showy.—Shrubs, natives of Europe, Asia, and America. Three genera are hardy in British gardens, which are thus contradistinguished:—

PHILADE'LPHUS. Calyx 4—5-parted. Petals 4—5. Stamens 20—40. Styles 4—5. Capsule 4—5-celled.

DEU'TZIA. Calyx 5—6-cleft. Petals 5—6. Stamens 10—12. Filaments tricuspidate. Styles 3—4. Capsule 3—4-celled.

DECUMA'RIA. Calyx 7—10-toothed. Petals 7—10. Stamens 21—30. Style 1. Capsule 7—10-celled.

## GENUS I.

### PHILADE'LPHUS *L.* THE PHILADELPHUS, *or* *MOCK ORANGE.* *Lin. Syst.* Icosándria Monogýnia.

*Identification.* Lin. Gen., No. 614.; Dec. Prod., 3. p. 205.; Don's Mill., 2. p. 807.
*Synonymes.* *Syringa* Tourn. Inst. t. 389., not of Lin.; Philadelphus, *Fr.*; Pfeifenstrauch (Pipe Shrub), *Ger.*; Filadelpho, *Ital.*; Pipe Privet, *Gerard*, the Syringa of the gardens.
*Derivation.* Philadélphus is a name used by Athenæus for a tree which cannot now be identified: Bauhin applied it to this genus. Instead of the common trivial name Syringa, applied to this genus in gardens, as its English name, we have substituted its generic name, Philadelphus; *Syringa* being the generic name of the lilac.

*Gen. Char.* *Calyx* tube obovate, turbinate; limb 4—5-parted. *Petals* 4—5. *Stamens* 20—40, free, shorter than the petals. *Styles* 4—5, sometimes connected, and sometimes more or less distinct. *Stigmas* 4—5, oblong or linear, usually distinct, rarely joined. *Capsule* 4—5-celled, many-seeded. *Seeds* scobiform, enclosed in a membranous arillus, which is fringed at one end. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, deciduous; oval, acuminate, serrated or entire. *Flowers* white, usually sweet-scented, disposed in corymbose cymes, or somewhat panicled on the extremities of the lateral shoots, rarely axillary and bracteate.

Deciduous shrubs, natives of Europe, North America, and Asia; cultivated for their very showy white flowers; most of which have a strong scent, resembling, at a distance, that of orange flowers, but, when near, disagreeably powerful. The species are in a state of utter confusion: there are probably only three: one a native of the South of Europe, or possibly of some other country; one of North America; and one, *P.* tomentòsus, of Nepal. All the kinds are of the easiest culture in any tolerably dry soil; and they are all propagated by layers, or by suckers or cuttings.

#### § i. *Stems stiff and straight. Flowers in Racemes.*

1. *P.* CORONA'RIUS *L.* The garland Philadelphus, *or* *Mock Orange.*

*Identification.* Lin. Sp., 671.; Schrad. Diss.; Dec. Prod., 3. p. 205.; Don's Mill., 2. p. 807.
*Synonymes.* *Syringa* suavèolens *Mœnch Meth.* 678.; Wohlriechender, Pfeifenstrauch, *Ger.*; Fior angiolo, *Ital.*
*Engravings.* Bot. Mag., t. 391.; Schkuhr Handb., t. 121.; Lam. Ill., t. 420.; and our *fig.* 822.

*Spec. Char., &c.* Leaves ovate, acuminate, serrately denticulate, 3-nerved, rather glabrous, but hairy upon the veins beneath; inflorescence racemose. Flowers sweet-scented. Lobes of the calyx acuminate. Styles distinct

almost from the base, not exceeding the stamens in height. (*Dec. Prod.*) A dense fastigiate bush. Native country uncertain; according to some, the South of Europe, but not common there. Height 10 ft. to 12 ft. Introduced in 1596. Flowers white, sweet-scented; May and June. Fruit brown; ripe in September. Decaying leaves yellowish green.

822. *P.* coronàrius.

*Varieties.* This species varies in having its leaves sometimes perfectly glabrous beneath, and sometimes slightly pubescent along the nerves; and, besides, as follows: —

- P. *c.* 1 *vulgàris* Schkuhr Handb. t. 121., Lam. Ill. t. 420., Dec. Prod. iii. p. 205. — A shrub of about the height of a man. Leaves ovate-oblong, large, and rather distant.
- P. *c.* 2 *nànus* Mill. Dict. 2.—A shrub, 2 ft. high; its branches and leaves crowded, and its flower-bearing branches incurved. It very seldom flowers.
- P. *c.* 3 *flòre plèno* Lodd. Cat. is a dwarf plant, like the above, but with double flowers.
- P. *c.* 4 *variegàtus* Lodd. Cat. has the leaves variegated with white or yellow, and is one of the few varieties of deciduous shrubs which preserve, through the summer, a tolerably healthy appearance with their variegation.

The shoots are clothed with a white bark, and interiorly they have a very large pith. The leaves are rough, and of a deep green above, though they are pale beneath. The flowers come out from the sides and ends of the branches in loose bunches, before any of the other species of the genus. The flower smell like those of the orange, and the leaves taste like the fruit of the cucumber. It will grow in almost any situation, whether open or shady; and it is easily propagated by division of the root, and by suckers, layers, or cuttings.

2. *P.* (c.) INODO'RUS *L.* The scentless-*flowered* Philadelphus, *or Mock Orange.*

*Identification.* Lin. Sp., 671.; Pursh Sept., 1. p. 329.; Dec. Prod., 3. p. 206.
*Synonymes.* *Syringa* inodòra *Mœnch*; *P.* láxus in various English gardens; Silindia senz' odore, *Ital.*
*Engravings.* Catesb. Car., 2. t. 84.; Bot. Mag., t. 1478.; and our *fig.* 823.

*Spec. Char., &c.* Leaves broad-ovate, acuminate, perfectly entire, 3-nerved, usually feather-nerved. Flowers singly, or in threes. Style, at the very tip, divided into 4 oblong stigmas. (*Dec. Prod.*) A large rambling shrub. Apparently of garden origin, or possibly from North America. Height 5 ft. to 10 ft. Cultivated in 1738. Flowers large, white, scentless; June and July. Fruit brown; ripe in September.

823. *P.* (c.) inodòrus

Not altogether so hardy as *P.* coronàrius; though it appears to be only a variety of that species.

824. *P.* (c.) Zeyheri

3. *P.* (c.) ZEY'HERI Schrad. Zeyher's Philadelphus, *or Mock Orange.*

*Identification.* Schrad. Diss. Philad.; Dec. Prod., 3. p. 205., Don's Mill., 2. p. 807.
*Engravings.* Schrad. Diss. Philad. ic.; and our *fig.* 824. from the Museum of the Jardin des Plantes.

*Spec Char., &c.* Not so tall as *P.* c. vulgàris. Leaves ovate, acuminate, serrately denticulate, rounded at the base, 3-nerved, hairy upon the veins beneath. Inflorescence some-

what racemose. Flowers fewer and larger than in *P.* c. vulgàris, and scentless. Lobes of the calyx long, acuminate. Style deeply 4-cleft. It differs from *P.* c. vulgàris, chiefly in its leaves being rounded at the base, and in its flowers being fewer, larger, and scentless. (*Dec. Prod.*) North America. Horticultural Society's Garden.

4. *P.* VERRUCO'SUS *Schrad.* The warted Philadelphus, *or Mock Orange.*

*Identification.* Schrad. Diss. Philad.; Dec. Prod., 3. p. 205.; Don's Mill., 2. p. 807.
*Synonyme.* *P.* grandiflòrus *Lindl. Bot. Reg.* t. 570., *Lodd. Cat.* ed. 1836.
*Engravings.* Bot. Reg., t. 570.; and our *fig.* 825.

*Spec. Char., &c.* Leaves elliptic-ovate, acuminate, denticulate, pubescent with hairs beneath, and bearing beneath, upon the midrib and primary veins, warts at the base of the hairs. Similar warts are, also, on the peduncles, pedicels, and calyxes. Inflorescence racemose. Lobes of the calyx acuminate. Style, at the very tip, 4-cleft. (*Dec. Prod.*) A large vigorous-growing somewhat fastigiate shrub. North America, or possibly a garden production. Height 8 ft. to 10 ft. Cultivated in 1800, or before. Flowers white; May and June. Fruit brown; ripe in September.

825. *P.* verrucòsus.

Young shoots twice the thickness of those of *P.* coronàrius, and having a somewhat more fastigiate habit. When in flower, this sort and the two following make a splendid appearance; the plants, in fine seasons, being so entirely covered with bloom as scarcely to show the leaves.

5. *P.* (v.) LATIFO'LIUS *Schrad.* The broad-leaved Philadelphus, *or Mock Orange.*

*Identification.* Schrad. Diss. Philad.; Dec. Prod., 3. p. 206.; Don's Mill., 2. p. 807.
*Synonyme.* *P.* pubéscens *Cels. Hort.*, *Lois. Herb. Amat.* t. 208.
*Engravings.* Lois. Herb. Amat., t. 208.; and our *fig.* 826.

*Spec. Char., &c.* Bark whitish. Leaves broad-ovate, acuminate, toothed, nerved with about 5 nerves, and pubescent with hairs beneath. Flowers in racemes. Lobes of the calyx acuminate. Style 4-cleft at the very tip. (*Dec Prod.*) A large rambling shrub, but still somewhat fastigiate, and crowded with branches. North America, or probably a garden production. Height 10 ft. Cultivated in 1815, or before. Flowers white; May and June. Fruit brown; ripe in September.

826. *P.* (v.) latifòlius

Distinguishable by its bark being whitish; and by its leaves, especially those of the younger branches, being more broadly ovate; and by the hairs they bear not being based by warts. A tolerably distinct variety, splendid when in flower.

6. *P.* (v.) FLORIBU'NDUS *Schrad.* The abundant-flowered Philadelphus, *or Mock Orange.*

*Identification.* Schrad. Diss. Philad.; Dec. Prod., 3. p. 205.; Don's Mill., 2. p. 807.
*Engravings.* Schrad. Diss. Philad., ic.; and our *fig.* 827. from a specimen in DeCandolle's herbarium.

827. *P.* floribundus.

*Spec. Char., &c.* Leaves ovate-oval, and with a long acuminate tip, serrately toothed, 3-nerved, pubescent with hairs beneath. Inflorescence subracemose. Flowers 5—7, showy, slightly scented. Lobes of the calyx long and acuminate. Style 4-cleft at the very tip. (*Dec. Prod.*) A shrub like the preceding. Of uncertain origin. Cultivated in 1815 or before.

7. *P.* SPECIO'SUS *Schrad.* The showy-*flowered* Philadelphus, *or Mock Orange.*

828. *P.* speciòsus.

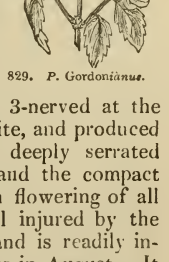
*Identification.* Schrad. in Dec. Prod., 3. p. 206.; Don's Mill., 2. p. 807.; Bot. Reg., vol. 23.
*Synonymes.* *P.* grandiflòrus of German gardeners; *P.* grandiflòrus láxus of other gardeners.
*Engravings* Schrad. Diss. Philad., ic.; Bot. Reg., t. 2003.; and our *fig.* 828.

*Spec. Char., &c.* Leaves ovate, rarely oval-ovate, long acuminated, sharply serrate, toothed, clothed with hairy pubescence beneath. Flowers solitary or by threes. Style deeply 4-cleft, exceeding the stamens. Lobes of calyx with very long acumens, tube nearly terete. (*Don's Mill.*) A vigorous-growing shrub, with ascending branches gently bending at their extremities, and loaded with snow-white flowers of the largest size and scentless. Origin uncertain. Height 10 ft. to 14 ft. Cultivated in 1815 or before. Flowers white; June.

The handsomest species of the genus, and at present rare in British gardens. Horticultural Society's Garden.

8. *P.* GORDONIA'NUS Lindl. Gordon's Philadelphus *or Mock Orange.*

*Identification.* Lindl. in Bot. Reg., 1839, No. 32.
*Engravings.* Bot. Reg., 1839, t. 32.; and our *fig.* 829.


829. *P.* Gordoniànus.

*Spec. Char., &c.* Branches pendulous, scaly, the young shoots pubescent. Leaves ovate, acute, coarsely dentate, hairy beneath. Racemes terminal, compact, 5—9-flowered. Ovary half superior. Style 4-cleft. Calyx spreading from the fruit. (*Lindl.*) A hardy vigorous-growing shrub, having a weeping appearance in consequence of producing numerous slender side shoots. America, on the north-west coast, on the Columbia River, in woods. Height 8 ft. to 10 ft. Introduced in 1823. Flowers white, scentless, very hairy; end of July. Fruit large, smooth; ripe in October.

The leaves are bright green, rather small, ovate, pointed, 3-nerved at the base, and coarsely serrated. The flowers are large, pure white, and produced in great profusion. The species is readily known by its deeply serrated leaves, its nearly superior fruit, its broad spreading calyx, and the compact manner in which its flowers are arranged. It is the latest in flowering of all the species, and one of the most showy. It was not at all injured by the severe winter of 1837–8. It grows in any common soil, and is readily increased from seeds, or by cuttings of the half-ripened shoots in August. It was named in compliment to Mr. Robert Gordon, foreman of the arboretum, in the Hort. Soc. Garden, who has paid great attention to this genus.

§ ii. *Stems more slender, rambling, twiggy, and loose. Flowers solitary, or 2 or 3 together.*

9. *P.* LA'XUS *Schrad.* The loose-*growing* Philadelphus, *or Mock Orange*

*Identification.* Schrad. Diss. Philad.; Dec. Prod., 3. p. 206.; Don's Mill., 2. p. 807.
*Synonymes.* *P.* hùmilis *Hortul.*; *P.* pubescens *Lodd. Cat.* edit. 1836.
*Engravings.* Schrad. Diss. Philad., ic.; Bot. Reg., 1839, t. 39.; and our *fig* 830. from a plant in the Horticultural Society's Garden.

*Spec. Char., &c.* Leaves oval-ovate and with a long acuminate tip, toothed, pubescent with hairs beneath. Flowers solitary, 2 or 3 together. Lobes of the calyx very long, acuminate. Style 4-cleft. Stigmas about level with the stamens. (*Dec. Prod.*) A low straggling shrub. North America. Height 4 ft. to 5 ft., but covering double that space upon the ground with its long slender deep brown shoots. Introduced about 1830. Flowers white, most commonly solitary and almost scentless.

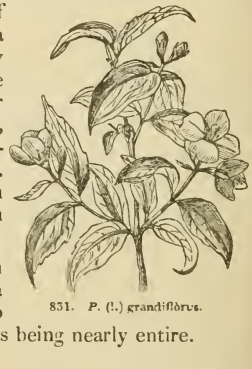
830. *P.* láxus

The leaves are smaller than is usual in the genus, very sharp-pointed, with the toothing unusually sharp; the uppermost leaves become gradually narrow, till those immediately below the flowers are not unfrequently linear and entire. As this species leafs early, the young shoots are apt to be killed by frost, and when this takes place no flowers are produced that season, as it is from the ends of the lateral shoots that blossoms always appear in this genus. (*Bot. Reg.*)

10. *P.* (L.) GRANDIFLO'RUS *Willd.* The large-flowered Philadelphus, *or Mock Orange.*

*Identification.* Willd. Enum., 1. p. 511.; Schrad. Diss. Philad.; Dec. Prod., 3. p. 206.
*Synonymes.* *P.* inodòrus *Hortul.*; *P.* láxus *Lodd. Cat.* edit. 1836.
*Engravings.* Guimp. Abb. Holz., t. 44.; Schrad. Diss. Philad., ic.; and our *fig.* 831.

*Spec. Char., &c.* Epidermis of the branches of a reddish brown colour. Leaves ovate, with a long acuminate tip, denticulate, 3-nerved, hairy upon the veins, and with groups of hairs in the axils of the veins. Flowers about 3 together, or solitary; scentless. Lobes of the calyx long, acuminate. Styles concrete into one, which extends beyond the stamens. Stigmas 4, linear. (*Dec. Prod.*) A vigorous-growing shrub. North America. Height 10 ft. to 12 ft. Introduced in 1811. Flowers white; June and July.


831. *P.* (L.) grandiflòrus.

We have given this description and figure from Schrader and Guimpel, because in 1837 there was a plant in the Hort. Soc. Garden which answered to it, and which differs from *P.* speciòsus in the leaves being nearly entire.

11. *P.* HIRSU'TUS *Nutt.* The hairy-*leaved* Philadelphus, *or Mock Orange*

*Identification.* Nutt. Gen. Am., 1. p. 301.; Dec. Prod., 3. p. 206.; Don's Mill. 2. p. 808.
*Synonymes.* *P.* villòsus *Lodd. Cat.*; *P.* grácilis *Lodd. Cat.*
*Engravings.* Wats. Dend. Brit., t. 47.; and our *figs.* 832, 833.

*Spec. Char., &c.* Leaves oblong-ovate, acute, dentate, 5-nerved, hairy on both surfaces, whitish on the under one. Flowers singly, or by threes. Styles concrete to the tip. Stigmas undivided. (*Dec. Prod.*) A straggling sarmentose shrub. America, in Tennessee. Height 3 ft. to 5 ft., but spreading

several times that distance by its long shoots, which sometimes grow from 6 ft. to 10 ft. in a season. Introduced in 1820. Flowers white, scentless; middle of July.

832. *P.* hirsùtus.

Very hardy, uninjured by the winter of 1837–8, and striking readily from half-ripened cuttings planted in sandy loam in shady situations and covered with a hand-glass. Grafted standard high, it would form a very ornamental object.

833. *P.* hirsùtus.

12. *P.* TOMENTO'SUS *Wall.* The woolly-*leaved* Philadelphus, *or Mock Orange.*

*Identification.* Wall. Cat., 3658.; Don's Mill., 2. p. 807.
*Synonymes.* *P.* nepalénsis *Lodd. Cat.* edit. 1836; ? *P.* triflòrus *Royle.*
*Engravings.* Royle Illust., t. 46. f. 1.; our *fig.* 834. from Royle; and *fig.* 835. from a specimen in the Linnæan herbarium.

834. *P.* tomentòsus.

*Spec. Char., &c.* Leaves ovate, acuminated, denticulated, tomentose beneath. Racemes terminal. Pedicels opposite. Lobes of calyx ovate, acute. (*Don's Mill.*) A rambling shrub. Nepal and Kamaon. Height 5 ft. to 6 ft. Introduced in 1822. Flowers white; July.

835. *P.* tomentòsus.

*P.* triflòrus, Royle observes, is, probably, only *P.* tomentòsus in a less advanced state. According to Mr. Gordon, *P.* triflòrus is very distinct from *P.* tomentòsus, and quite hardy.

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*P. mexicànus* Schlecht. in Linnæa 13. 418., Plant. Hart. 61., and Bot. Reg. Chron. 1840, No. 70., was raised from seeds in the Horticultural Society's Garden in 1840, and is probably hardy.

## GENUS II.

DEU'TZ*IA* Thunb. THE DEUTZIA. *Lin. Syst.* Decándria Trigýnia.

*Identification.* Thunb. Nov. Gen., 19.; Jap. p. 10.; Juss. Gen., 431.; Don's Mill., 2. p. 808.
*Synonymes.* Philadelphus in part, Leptospèrmum in part.
*Derivation.* Named in honour of *John Deutz*, a Dutch naturalist.

*Gen. Char.* *Calyx* tube campanulate, tomentose; limb 5—6-cleft. *Petals* 5—6, oblong. *Stamens* 10. *Filaments* tricuspidate. *Styles* 3—4, longer than the corolla. *Stigma* simple, club-shaped. *Capsule* globular, truncate, perforated, somewhat 3-cornered, scabrous; 3—4-valved, 3—4-celled. *Seeds* several in each cell. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, deciduous; petiolate, ovate, acuminated, serrated, wrinkled, and veined; scabrous from stellate fascicles of down. *Flowers* white, in compound panicles; peduncles and pedicels tomentose and scabrous. — Much-branched shrubs, with the branches purplish and villous; natives of Asia; of the same culture as Philadélphus.

1. D. SCA'BRA. The scabrous Deutzia.

*Identification.* Lin. Syst., p. 425.; Thunb. Jap., t. 185.; Don's Mill., 2. p. 808.
*Engravings.* Thunb. Jap., t. 24.; Bot. Reg., t. 1718.; and our *fig.* 836.

*Spec. Char., &c.* Leaves ovate, acuminated, serrated, scabrous from stellate down. Flowers in compound panicles; peduncles and pedicels scabrous. Calycine lobes short and bluntish. (*Don's Mill.*) A sarmentose, showy, free-flowering shrub. Japan. Height 4 ft. to 6 ft. Introduced in 1822. Flowers white; May and June. Fruit brown; ripe in September. Decaying leaves yellowish brown. Naked young wood purplish brown.

836. Deùtzia scàbra.

2. D. (s.) CORYMBO'SA. The corymbose-*flowered* Deutzia.

*Identification.* R. Br. in Wall. Cat., 3652.; Don's Mill., 2. p. 808.
*Synonymes.* D. canéscens *Sieboldt*; *P*hiladélphus corymbòsus *Wall.*
*Engravings.* Royle Illust., t. 46. fig. 2.; and our *fig.* 837.

*Spec. Char., &c.* Glabrous. Leaves ovate, acuminated, cuspidately serrated. Panicles corymbose, trichotomous. Panicle and outside of calyx dotted. Teeth of calyx short and rounded. Teeth of filaments, shorter than the anthers. (*Don's Mill.*) A sarmentose shrub. Nepal, on mountains. Height 3 ft. to 4 ft. Introd. in 1830. Flowers white, sweet-scented, produced in abundance; May and June. Fruit ?. Decaying leaves yellowish brown. Naked wood brown.

837. D. (s.) corymbòsa.

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*D. stamínea* R. Br., *P*hiladélphus stamíneus *Wall.*, has entire, scabrous, lanceolate leaves, and white sweet-scented flowers. A native of Nepal, on high mountains; but not yet introduced.

*D. Brunònia Wall.*, Leptospérmum scàbrum *Wall.*, has ovate leaves, and axillary white flowers. It is a native of Kamaon, but has not yet been introduced. All these are probably only varieties of one form.

## GENUS III.

DECUMA'RIA *L.* THE DECUMARIA. *Lin. Syst.* Dodecándria Monogýnia.

*Identification.* Lin. Gen., No. 597.; Lam. Ill., t. 403.; Don's Mill., 2. p. 808.
*Synonyme.* Forsýthia Walt., not of Vahl.
*Derivation.* From *decuma*, a tenth; in reference to the prevailing number, in some of the parts of fructification, being ten. In DeCandolle's description of the genus, it is stated that the teeth and nerves of the calyx, the petals, the stigmas, and the cells of the capsule, are each usually ten.

*Gen. Char. Calyx* tube campanulate; limb 7—10-toothed. *Petals* oblong, equal in number to the teeth of the calyx, and alternating with them. *Stamens* thrice the number of the petals, disposed in one series. *Style* 1. *Capsule* ovoid, connate with the calyx. *Seeds* numerous, oblong (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, deciduous; glabrous, entire or toothed at the apex. *Flowers* white, sweet-scented, disposed in terminal corymbs, sometimes diœcious. *Leaf buds* beset with short rufous pili. — Sarmentose shrubs, natives of North America.

They will grow in any dry soil, and are readily propagated by cuttings of the half-ripened wood.

⁎ 1. D. BA'RBARA *L.* The barbarous Decumaria.

*Identification.* Lin. Sp., No. 1668.; Pursh Sept., 1. p. 328.; Dec. Prod., 3. p. 206.
*Synonymes.* D. radicans *Mœnch Meth.* 17.; D. Forsýthia Michx. Fl. Bor. Amer. 1. p. 282.; D prostràta *Lodd. Cat.*
*Engravings.* N. Du Ham., 6. t. 20.; and our *figs.* 838. and 839.

838. D. bárbara.

*Spec. Char., &c.* Leaves ovate-oblong, acute at both ends, glabrous, entire or toothed at the tip. Buds hairy with short rufous hairs. (*Dec. Prod.*) A sarmentose shrub seldom seen in a vigorous state in British gardens. America, and Lower Carolina, in shady woods. Height 4 ft. to 5 ft.; against a wall 10 ft. to 12 ft. Introduced in 1785. Flowers white, in corymbose panicles, sweet-scented; July and August.

839. D. bárbara.

*Variety.*

⁎ *D. b.* 2 *sarmentòsa* Dec. Prod. iii. p. 206.; D. sarmentòsa *Bosc Act. Soc. Hist. Nat. Par.* i. p. 76. t. 13., *Pursh. Sept.* 1. p. 328.; Forsýthia scándens *Walt. Car.* 154. — Lower leaves rounded; upper leaves ovate-lanceolate. (*Dec. Prod.*) A native of moist shaded places in Virginia and Carolina, where, in company with *Zízyphus* volùbilis, it ascends the tallest cypress trees in the cedar swamps. Larger in all its parts than the species.

The flowers are only produced in favourable situations; and the plant seldom rises above 4½ or 5 feet, in the open air, in the climate of London.

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## Order XXXI. NITRARIA`CEÆ.

*Ord. Char.* *Calyx* 5-toothed, inferior, fleshy. *Petals* 5, inflexed; æstivation valvate. *Stamens* 15. *Anthers* innate. *Ovarium* superior, 3- or more celled. *Stigma* terminated by as many lines as there are cells in the ovarium. *Fruit* drupaceous, 1-seeded, opening by 3 or 6 valves. *Albumen* none. Differs from *Ficoïdeæ* in æstivation of petals. (*G. Don.*)

*Leaves* simple, alternate or opposite, exstipulate, deciduous; small, generally in fascicles. *Flowers* small, greenish white. — Low shrubs, natives of Asia.

### Genus I.

NITRA`RIA *L.* The Nitraria. *Lin. Syst.* Dodecándria Monogýnia.

*Identificàtion.* Lin. Gen., No. 602.; Lam. Ill., t. 403.; Gærtn. Fruct., 1. t. 58.; Dec. Prod., 3. p. 456.; Don's Mill., 3. p. 155.
*Derivation.* So named by Schober, from one of the species being discovered in certain nitre-works in Siberia, along with other saline plants.

*Gen. Char.* The same as that of the order.

*Leaves* simple, alternate or opposite, exstipulate, deciduous; oblong entire, small-fascicled. *Flowers* small, white, in panicled racemes.— Shrubs, with white bark; natives of Siberia.

Seldom rising more than 3 ft. in height; and, in British gardens, thriving best in a dry soil, composed partly of lime rubbish, which should be, about once a year, strewed with a thin coat of salt. Propagated by cuttings.

1. N. SCHO'BERI L. Schober's Nitraria.

*Identification.* Lin. Sp., 638.; Dec. Prod., 3. p. 456.; Don's Mill., 3. p. 155.

*Spec. Char., &c.* Leaves oblong, perfectly entire. Drupes ovate. (*Dec. Prod.*) A low bushy shrub, varying with branches spiny, and branches smooth. Russia, in the neighbourhood of salt lakes. Height 1 ft. to 3 ft. Introd. in 1788. Flowers white; May to August. Fruit blackish blue or red, rather larger than peas; rarely seen in England.

840. N. Schóberi sibírica.

*Varieties.*

*N. S.* 1 *sibírica.* N. sibírica *Pall. Fl. Ross.* t 50. f. A., and our *fig.* 840.—Fruit of a blackish blue colour. Siberia. Hort. Soc. Garden.

*N. S.* 2 *cáspica.* N. cáspica *Pall. Flora Ross.* t. 50. f. B., and our *fig.* 841.—Fruit red. Leaves longer. Young branches pubescent. Fruit larger, and much more acute. Hort. Soc. Garden.

841. N. S. cáspica.

*N. tridentàta* Desf., a native of Africa, is described in our first edition, but is rather tender in British gardens.

## ORDER XXXII. GROSSULA'CEÆ.

*ORD. CHAR.* *Calyx* 4—5-parted. *Petals* 5. *Stamens* 4—5. *Anthers* introrse. *Ovarium* 1-celled, with two opposite parietal placenta. *Style* 2- 3-, or 4-cleft. *Fruit* succulent, crowned by the persistent calyx, many-seeded. *Seeds* arillate. *Albumen* horny. Differs from Cactàceæ in definite stamens, albuminous seed, calyx, corolla, and habit. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; lobed or cut, plaited when folded in the bud. *Flowers* axillary, or terminal, greenish, whitish yellow or red.—Shrubs; natives of Europe, Asia, and North America; all included in the genus *Ribes.*

### GENUS I.

*RI'BES* L. THE RIBES. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Lin. Gen., 281.; Dec. Prod., 3. p. 477.; Don's Mill., 3. p. 177.
*Synonymes.* Grossulària *Tourn.*; Chrysobótrya, Calobótrya, Coreósma, and *Rèbes* Spach; Groseiller, *Fr.*; Johannisbeere, *Ger.*; Kruisbes, *Dutch*; Uva Spina, *Ital.*; Grossella, *Span.*
*Derivation.* The word *Ribes* is from the name of an acid plant mentioned by the Arabian physicians, which has been discovered to be the *Rhèum Ribes*; Grossulària is from the Latin *grossulus*, a little unripe fig.

*Gen. Char.* The same as that of the order.

*Leaves* simple, alternate, stipulate, deciduous; lobed or cut, plaited while in the bud. *Flowers* greenish white, yellow, or red; very rarely unisexual. There is one bractea at the base of each pedicel, which is cut more or less; and two much smaller ones, called bracteoles, under each ovarium. — Unarmed or spiny shrubs; natives of Europe, Asia, and North America; two of which (the common currant and gooseberry) are well known in British gardens, for their valuable fruits.

Many of the sorts here set down as species are, we have no doubt, only varieties; but, as we are not able to refer these to their aboriginal forms, we have followed the usual authorities, and more especially the nomenclature adopted in the Horticultural Society's Garden. All the species of *Ribes* strike root readily from cuttings; and grow freely in any soil that is tolerably dry; but, as they are only ligneous in a subordinate degree, and are but of a temporary duration under any circumstances, they require to be grown in dug beds or borders, and are, therefore, more fitted for scientific collections or flower-borders, than for general shrubberies, undug arboretums, or lawns. The most showy species are *Ribes* sanguíneum and aureum, and their varieties. *R.* speciòsum has a singular fuchsia-like appearance when in blossom; and *R.* multiflòrum, though the flowers are greenish, is remarkably elegant, on account of the long many-flowered racemes in which they are disposed.

## § i. *Grossulàriæ* Ach. Rich. *Gooseberries.*

*Synonymes.* Groseiller à Maquereau, *Fr.*; Stachelbeere Strauch, *Ger.*; Kruisbes, *Dutch*; Úva Spina, *Ital.*; and Grosella, *Span.*

*Sect. Char., &c.* Stems, in most instances, prickly. Leaves plaited. Flowers in racemes; 1, 2, or 3, in a raceme. Calyx more or less bell-shaped. (*Dec. Prod.*, iii. p. 478.) — Shrubs with prickles; and with the leaves and fruit more or less resembling those of the common gooseberry.

### A. *Flowers greenish white.*

1. *R.* OXYACANTHÖI`DES *L.* The Hawthorn-*leaved* Gooseberry.

*Identification.* Pursh Sept., 2. p. 165.; Berlandier in Mém. Soc. Phys. Gen., 3. pars 2., not of Michaux.

*Engravings.* Mém. Soc. Phys. Gen., 3. pars 2. t. 1. f. 1.; Dill. Elth., t. 139. p. 166.; and our *fig.* 842.

*Spec. Char., &c.* Infra-axillary prickles larger, and mostly solitary; smaller prickles scattered here and there. Leaves glabrous, their lobes dentate, their petioles villous, and a little hispid. Peduncles short, bearing 1—2 flowers. Berry globose, glabrous, purplish blue. (*Dec. Prod.*) A prickly shrub. Canada, on rocks. Height 2 ft. to 3 ft. Introduced in 1705. Flowers greenish; April. Fruit small, red and green, or purplish blue; ripe in August; and agreeable to eat.

842. *R. oxyacanthöides.*

This shrub varies much in the number and colour of its prickles, and its more or less dense ramification and pubescence. The fruit resembles that of the common gooseberry. It is not common in British gardens, the *R. oxyacanthöides* of Michaux (*R.* lacústre *Poir.*) being different from it. Perhaps it is only one of the wild states of the common gooseberry; which varies so very much when in a state of culture, that it is reasonable to suppose that it will vary much also in a wild state.

2. *R.* SETO'SUM *Lindl.* The bristly Gooseberry.

*Identification.* Lindl. Bot. Reg.; Hook. Fl. Amer., 1. p. 230.; Don's Mill., 3. p. 177.
*Engravings.* Lindl. Bot. Reg., t. 1237.; and our *fig.* 843.

*Spec. Char., &c.* Branches beset with dense bristles. Prickles unequal, subulate. Leaves roundish, cordate at the base, pubescent, 3—5-lobed, deeply crenated. Peduncles 2-flowered, sometimes bracteate. Calyx tubularly campanulate, with the segments linear, obtuse, and spreading, twice the length of the petals, which are entire. Berries hispid. (*Don's Mill.*) A prickly shrub. North America, on the banks of the Saskatchawan. Height 4 ft. to 5 ft. Introduced in 1810. Flowers greenish; April and May. Fruit as in the preceding species.

843. *R.* setòsum.

3. *R.* TRIFLO'RUM *W.* The 3-flowered Gooseberry.

*Identification.* Willd. Enum., 1. p. 51.; Dec. Prod., 3. p. 479.; Don's Mill., 3. p. 177.
*Synonymes.* *R.* stamineum *Horn. Enum. Hort. Hafn.* p. 237.; *R.* t. màjus *Hort.*
*Engravings.* Mém. Soc. Phys. Gen., 3. pars 2. t. 1. f. 4.; and our *fig.* 844.

*Spec. Char., &c.* Infra-axillary prickles solitary. Leaves glabrous, 3—5-lobed, incisely dentate. Peduncles bearing 1—3 flowers. Pedicels long. Bracteas membranaceous, sheathing. Calyx tubularly bell-shaped. Petals spathulately obcordate. Berries reddish, glabrous. (*Dec. Prod.*) A prickly shrub. North America. Height 3 ft. to 4 ft. Introduced in 1812. Flowers whitish; April and May. Fruit reddish, glabrous; ripe in July and August.

844. *R.* triflòrum.

Easily distinguished from *R. Cynósbati* by its smooth fruit, narrow flowers, and exserted stamens.

4. *R.* (T.) NI'VEUM *Lindl.* The snowy-*flowered Currant-like* Gooseberry.

*Identification.* Lindl. in Bot. Reg., t. 1692.
*Engravings.* Bot. Reg., t. 1692.; and our *fig.* 845.

*Spec. Char., &c.* Branches prickly, the prickles solitary, or in pairs, or in threes. Leaves glabrous, roundish, entire at the base, having in the outward part 3 blunt lobes that are crenately cut. Flowers about 2 together, on peduncles. Sepals reflexed. Stamens very prominent, conniving, hairy, longer than the style. (*Lindl.*) A prickly shrub. North America, on the north-west coast. Height 4 ft. to 5 ft. Introd. 1826. Flowers white, pendulous; April and May. Fruit deep rich purple, about the size of the black currant: ripe in July and August.

845. *R.* (t.) niveum.

The bush bears some similarity to *R.* triflòrum. The fruit resembles a small smooth gooseberry; "but its flavour is very different: it is entirely destitute of the flatness which is more or less perceptible in even the best gooseberries; in lieu of which it has a rich subacid, vinous, rather perfumed, flavour, which is extremely agreeable. The fruit is rather too acid to be eaten raw; but, when ripe, it makes delicious tarts, and would, probably, afford an excellent means of improving the common gooseberry by cross breeding." (*Lindl.*) *R.* níveum, apart from these considerations (which, however, will probably lead to its culture in the kitchen-garden), is, from its white pendulous flowers, a valuable addition to our ornamental hardy shrubs.

### 5. *R.* (T.) CYNO'SBATI *L.* The Dog-Bramble Gooseberry.

*Identification.* Lin. Sp., 292.; Dec. Prod., 3. p. 479.; Don's Mill., 3. p. 178.
*Synonyme.* *R.* ? triflòrum var.
*Engravings.* Mém. Soc. Phys. Gen., 3. pars 2. t. 1. f. 3.; and our *fig.* 846.

*Spec. Char., &c.* Infra-axillary prickles 1—2. Leaves 3—4-lobed, softly pubescent. Peduncles bearing 2—3 flowers. Calyx campanulately cylindrical. Petals small, much shorter than the stigmas and stamens. Style simple, toward the middle hairy, rarely glabrous. Berry prickly. (*Dec. Prod.*) A prickly shrub. Canada, on mountains; and also Japan. Height 3 ft. to 4 ft. Introduced in 1759. Flowers whitish; April. Fruit reddish.

846. *R.* (t.) Cynósbati.

*Varieties.* There are two forms of this species: —

- R. (*t.*) C. 1 *frúctu glàbro*, with whitish flowers and smooth fruit. Native of Hudson's Bay.
- R. (*t.*) C. 2 *frúctu aculeàto*, with prickly branches and fruit, and flowers pubescent and purplish. Native of Lake Huron.

Hardly differs from *R.* divaricàtum, except in the broader tube of the corolla, and the shorter stamens.

### 6. *R.* (T.) DIVARICA'TUM *Dougl.* The spreading-*branched* Gooseberry.

*Identification.* Dougl. in Bot. Reg., t. 1359.; Don's Mill., 3. p. 178.; Lodd. Cat., ed. 1836.
*Synonymes.* *R.* ? triflòrum var.; *R.* ? Grossulària var. triflòra subvar.
*Engravings.* Bot. Reg., t. 1359.; and our *fig.* 847.

*Spec. Char., &c.* Branches divaricate, bristly, at length naked. Spines 1—3 together, axillary, deflexed, large. Leaves roundish, 3-lobed, deeply toothed, nerved, glabrous. Peduncles 3-flowered, drooping. Calyx funnel-shaped; with the segments at length spreading, and twice the length of the tube. Style and stamens exserted. (*Don's Mill.*) A large prickly shrub, with ascending branches. North America, on the north-east coast, common on the banks of streams near Indian villages. Height 5 ft. to 7 ft. Introduced in 1826. Flowers white; April. Fruit black, smooth, spherical, agreeable to eat; ripe in July.

847. *R.* (t.) divaricàtum.

Nearly allied to *R.* triflòrum, of which, like *R.* Cynósbati and some of the following sorts, it is, probably, only a variety.

7. *R.* (T.) IRRI'GUUM *Dougl.* The well-watered Gooseberry.

*Identification.* Dougl. in Hort. Trans., 7. p. 516.; Don's Mill., 3. p. 178.
*Synonyme.* *R.* ? triflórum var.
*Engraving.* Our *fig.* 848. from a plant in the Horticultural Society's Garden.

*Spec. Char., &c.* Prickles axillary, ternary. Leaves cordate, somewhat 5-lobed, toothed, ciliated, pilose on both surfaces, nerved. Peduncles 3-flowered, beset with glandular hairs. Calyx campanulate. Segments linear, about equal in length to the tube. Berries glabrous, spherical, half an inch in diameter, smooth, juicy, and well-flavoured. (*Don's Mill.*) A prickly shrub. America, on the north-west coast, on moist mountains and rocks, near springs and streams. Height 3 ft. to 4 ft. Introduced in 1820. Flowers white; April. Fruit reddish, glabrous; ripe in August.

848. *R.* (t.) irriguum.

8. *R.* HIRTE'LLUM *Michx.* The slightly hairy-*branched* Gooseberry.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 111.; Dec. Prod., 3. p. 479.; Don's Mill., 3. p. 178.
*Engraving.* Our *fig.* 849. from a specimen in the Lambertian herbarium.

*Spec. Char., &c.* Spines infra-axillary. Branches sparingly hispid, with short hairs. Leaves small, cleft half-way down into 3 dentate lobes. Peduncles 1-flowered. Berries glabrous. (*Dec. Prod.*) A prickly shrub. Canada and Virginia, on rocky mountains. Height 3 ft. to 4 ft. Introduced in 1812. Flowers greenish white; April and May. Fruit red; ripe in August.

849. *R.* hirtéllum.

9. *R.* GRA'CILE *Michx.* The slender-*branched* Gooseberry.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 111.; Pursh Fl. Amer. Sept.; Dec. Prod., 3. p. 479.
*Engraving.* Our *fig.* 850. from a specimen in the Lambertian herbarium.

850. *R.* grácile.

*Spec. Char., &c.* Infra-axillary spine very short. Petioles of leaves slender. Disks cut into acute lobes. Peduncles slender, upright, bearing about 2 flowers. Calyx glabrous, tubularly bell-shaped. Berries glabrous, purple or blue; of exquisite flavour. (*Dec. Prod.*) A prickly shrub. North America, on the mountains of Tennessee, and in mountainous meadows from New York to Virginia. Height 3 ft. to 4 ft. Introduced in 1812. Flowers whitish; April and May. Fruit purple or blue, high-flavoured; ripe in July and August.

10. *R.* ACICULA'RE *Smith.* The acicular *spined* Gooseberry.

*Identification.* Smith in Rees's Cycl.; Don's Mill., 3. p. 178.
*Synonyme.* *R.* U'va-crispa *Sievers* in *Pall. Nord. Beytr.* 7. p. 274., ? *Pall. Fl. Ross.* 2. p. 37.
*Engravings.* Led. Fl. Ross. Alt. Ill., t. 230.; and our *fig.* 851.

*Spec. Char., &c.* Very prickly. Prickles stipular, 3—5-parted. Leaves rather pubescent, nearly orbicular, 3—5-lobed. Lobes bluntish, deeply serrated. Peduncles usually 1-flowered, bracteolate in the middle. Calyx campanulate, smoothish. Berries bractless, and, as well as the

851. *R.* aciculàre.

styles, quite glabrous. Stem erect or procumbent. Petals white. Berries glabrous. (*Don's Mill.*) A prickly shrub. Siberia, on stony, rocky, mountainous places. Height 1 ft. to 2 ft. Introduced ? 1815. Flowers whitish; April and May. Fruit yellowish or purplish; grateful to the taste; ripe in July and August. Horticultural Society's Garden.

11. *R.* GROSSULA'RIA *L.* The *common* Gooseberry.

*Identification.* Lin. Sp., p. 291.; Smith's Engl. Bot., t. 1292.; Don's Mill., 3. p. 179.
*Synonymes.* *R.* U'va-críspa *Œd. Fl. Dan.* 546.; Grossulária hirsùta *Mill. Dict.* No. 2.; *R.* U'va-críspa var. 5. sativa *Dec. Fl. Fr.* 4. p. 408.; Feaberry, *Cheshire and the North of England*; Feabes, *Norfolk*; Grozert *in Scotland*; Groseiller à Maquereau, *Fr.*; Griselle *in Piedmont*; gemeine Stachelbeere, *Ger.*; Uva Spina, *Ital.*
*Derivation.* U'va-críspa signifies the rough grape. Feaberry is a corruption of fever-berry, from the fruit being formerly, according to Gerard, considered a specific against fevers; Feabes, or Feapes, is an abbreviation of feaberry. Grozert is evidently taken from the French name. Groseiller à Maquereau is from the Latin name Grossulária, and the use made of the fruit as a sauce for mackerel. Stachelbeere signifies prickly berry; and Uva Spina, the prickly grape. Gooseberry is from gorse berry, from the prickliness of the bush resembling that of the gorse, or furze; or, more probably, from the use made of the fruit as a sauce to young, or green, geese.
*Engravings.* Eng. Bot., t. 1292.; and our *fig.* 852.

852. *R.* Grossulária.

*Spec. Char., &c.* Prickles 2 or 3 under each bud. Branches otherwise smooth, and spreading or erect. Pedicels 1—2-flowered. Leaves 3—5-lobed, rather villous. Bracteas close together. Calyx campanulate, with reflexed segments, which are shorter than the tube. Petals rounded at the apex, glabrous, but bearded in the throat. Style always beset with long down. (*Don's Mill.*) A prickly spreading shrub. Europe and Nepal, in woods and hedges. Height 2 ft. to 4 ft. Flowers greenish; April. Fruit commonly red, sometimes yellow or green; ripe in August.

*Varieties.*

R. *G.* 2 *U'va-críspa* Smith Engl. Fl. ii. p. 333.; *R.* U'va críspa *Lin. Sp.* 292., *Smith Engl. Bot.* t. 2057. (our *fig.* 852.); U'va-críspa *Fuch. Hist.* t. 187.; U'va spìna *Math. Valgr.* 1. t. 151. f. 1.; *R.* U'va-críspa var. 1 sylvéstris *Berlandier*; has the berries smooth.

853. *R.* G. Uva-crispa.

R. *G.* 3 *spinosíssima* Berl. MSS. has the branches thickly beset with spines.

R. *G.* 4 *reclinàta* Berl. MSS., *R.* reclinàtum *Lin. Sp.* 291., Grossulária reclinàta *Mill. Dict.* No. 1., has the branches rather prickly, and reclinate.

R. *G.* 5 *Besseriàna Berl. MSS.*, *R.* hýbridum *Besser Prim. Fl. Gall. Austr.* p. 186., has the branches prickly, and the fruit pubescent, intermixed with glandular bristles. Native of Cracow, in hedges.

R. *G.* 6 *subinérmis* Berl. MSS. — Plant nearly glabrous. Bark smooth, brown. Prickles axillary. Flowers and leaves small. Native about Geneva. Perhaps a subvariety of *R.* G. reclinàta.

R. *G.* 7 *macrocárpa* Dec. Prod. iii. p. 478. — Stigmas often longer than the petals. Flowers and berries large.

R. *G.* 8 *bracteàta* Berl. MSS. — Berries clothed with 2—4—5 straight, coloured, nearly opposite, bracteas and bristles, resembling sepals, which fall off before the berry arrives at maturity. (*Don's Mill.*)

R. *G.* 9 *himalayànus*, *R.* himalayànus *Royle*, was raised in the

Horticultural Society's Garden in 1838, and seems hardly different from the species. (*Gard. Mag.*, 1839, p. 4.)

*Other Varieties.* Till lately, botanists made even the rough and the smooth-fruited kinds of the cultivated gooseberry two distinct species, as may be seen by the synonymes to *R.* U'va-crispa above; though it was recorded by Withering, that seeds from the same fruit would produce both rough and smooth-fruited plants. If varieties were to be sought for among the sorts in cultivation, they would be found almost without number. The following selection of garden varieties has been made solely with reference to the habit of growth of the plants: —

*The Red Champagne*, or Ironmonger, has the branches erect and fastigiate, and will form a handsome bush, 6 or 7 feet high.

*Horseman's Green Gage* is a most vigorous-growing plant, with a spreading head, and will form a bush 10 ft. high.

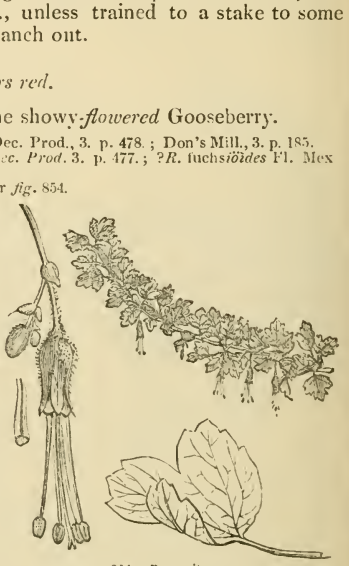
*The Red Rose* is a vigorous-growing bush, with a pendulous head, but seldom rising higher than 3 ft., unless trained to a stake to some height before it is allowed to branch out.

B. *Flowers red.*

12. *R.* SPECIO'SUM *Pursh.* The showy-*flowered* Gooseberry.

*Identification.* Pursh Fl. Amer. Sept., 2. p. 731.; Dec. Prod., 3. p. 478.; Don's Mill., 3. p. 185.
*Synonymes.* *R.* stamíneum *Smith* in *Rees's Cycl., Dec. Prod.* 3. p. 477.; ?*R.* fuchs*ióides* Fl. Mexic. ined.; *R.* triacánthum *Menzies.*
*Engravings.* Sw. Fl.-Gard., 2d ser., t. 149.; and our *fig.* 854.

*Spec. Char., &c.* Shrub prickly. Prickles infra-axillary, triple. Branches hispid. Leaves with petiole short, and disk wedge-shaped at the base, rounded at the outer end, indistinctly 3-lobed, incisely crenate, glabrous, and nerved. Peduncles longer than the leaves, and bearing 1—3 flowers. Pedicels and germens hairy with glanded hairs. Bracteas rounded or very obtuse. Flowers of a deep red. Calyx cylindrical, 4-parted; the lobes oblong, obtuse. Petals of the length of the lobes of the calyx. Stamens 4; in length double that of the calyx. Filaments red. Style as long as the stamens, simple, red. (*Dec. Prod.*) A very prickly-branched shrub, with a brownish red aspect. America, on the western coast, and in California. Height, in a wild state, 3 ft. to 4 ft.; in cultivation twice that height in rich deep soil. Introduced in 1829. Flowers deep red; May and June. Fruit red; ripe ?.



854. *R.* speciosum.

The shining leaves and large crimson glittering blossoms (resembling those of the fuchsia) of this species render it a most desirable acquisition to the flower-garden and shrubbery. The leaves, in favourable situations, are frequently retained during great part of the winter; so that it may almost be considered as an evergreen. It will grow by cuttings of the old or young wood, but not so readily as most other species; and, therefore, it is generally propagated by pegging down the shoots quite flat, and covering them with an inch of soil, as recommended for the propagation of the common plum for stocks. Plants of this species do not grow so rapidly as most others of the gooseberry sections; and their branches arch over and droop in such a manner, as not to display the flowers to advantage, unless the branches are raised at least to the level of the eye. For this reason, the plant ought either to be grown on elevated rockwork, or trained to an espalier or wall.

### 13. *R.* MENZIE'SII Ph. Menzies's Gooseberry.

*Identification.* Pursh Sept., 2. App. p. 732.; Don's Mill., 3. p. 185.
*Synonyme.* *R.* fèrox *Smith* in *Rees's Cycl.*
*Engraving.* Our *fig.* 855. from a specimen in the Lambertian herbarium.

855. *R.* Menziesii.

*Spec. Char., &c.* Very prickly. Spines 3-partite. Leaves cordate, truncate at the base, 5-lobed, serrated, wrinkled from veins, clothed with pubescence beneath. Peduncles usually 1-flowered. Calyx cylindrically campanulate, deeply 5-parted, glandular. Stamens 5, enclosed. Style a little exserted. Germens and peduncles prickly. (*Don's Mill.*) A very prickly shrub. North California and at Port Trinidad. Height 4 ft. to 5 ft. Introduced in 1830. Flowers bright red or crimson, glandular, as showy as in the preceding species; May and June. Fruit red; ripe ?.

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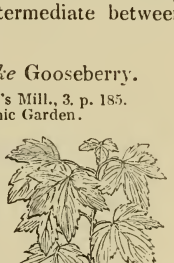
R. *microphýllum* H. B. et Kunth is a native of the mountains of Mexico, at an elevation of 4200 ft., with the leaves small and nearly reniform, and the peduncles very short and 2-flowered. It grows to the height of from 4 ft. to 6 ft.

## § ii. *Botrycárpum* Dec.

*Sect. Char.* Fruit disposed in racemes; the plants having the prickles of the preceding section (Grossulària), and the racemose flowers of the following section (*Ribèsia*). (*Don's Mill.*, iii. p. 185.) Plants intermediate between gooseberries and currants.

### 14. *R.* ORIENTA'LE *Poir.* The Eastern *Currant-like* Gooseberry.

*Identification.* Poir. Encycl. Suppl., 2. p. 856.; Desf. Arb., 2. p. 88.; Don's Mill., 3. p. 185.
*Engraving.* Our *fig.* 856. from a living specimen in the Birmingham Botanic Garden.



856. *R.* orientàle.

*Spec. Char., &c.* Plant rather prickly. Leaves 3—5-lobed, somewhat reniformly orbicular, cut, hairy; lobes rather deep, obtuse. Petioles hairy. Racemes erectish, few-flowered. Bracteas longer than the flowers. Style bifid at the apex. Flowers greenish yellow. Fruit like those of the currant. (*Don's Mill.*) A vigorous-growing shrub. Syria. Height 4 ft. to 6 ft. Introduced in 1824. Flowers greenish yellow; April and May. Fruit red; ripe in September.

The plant in the Birmingham Botanic Garden does not agree altogether with the description, and may possibly be some other species.

### 15. *R.* SAXA'TILE *Pall.* The rock *Currant-like* Gooseberry.

*Identification.* Pall. Nov. Act. Petr., 10. p. 726.; Don's Mill., 3. p. 185.
*Synonyme.* ?*R.* alpinum *Sievers* in *Pall. Nord. Beytr.* 7. p. 345.
*Engravings.* Led. Fl. Ros. Alt. Ill., t. 239.; and our *fig.* 857.

857. *R.* saxàtile.

*Spec. Char., &c.* Prickles scattered. Leaves roundish-cuneiform, bluntly 3-lobed. Racemes erect. Bracteas linear, shorter than the pedicels. Calyx flat, scabrous. Sepals small, of a livid green colour. Flowers small, greenish purple. Petals spathulate. Berries smooth, globose, bractless, dark purple when mature, full of edible pulp, rarely so large as common currants, but like them. (*Don's Mill.*) A bushy shrub. Siberia. Height 4 ft. to 5 ft. Introduced in 1819. Flowers small, greenish purple; April and May. Fruit dark purple; ripe in August.

### 16. *R.* DIACA'NTHA *L. fil.* The twin-prickled *Currant-like* Gooseberry.

*Identification.* Lin. fil. Suppl., p. 157.; Dec. Prod., 3. p. 479.
*Engravings.* Schmidt Baum., t. 97.; and our *fig.* 858.

*Spec. Char., &c.* Stipular prickles twin. Leaves with a disk shorter than the petiole, and wedge-shaped, perfectly glabrous, and parted into 3 lobes which are dentate. Flowers upon long pedicels, in long upright racemes. Bracteas the length of the flowers. Sepals rounded, yellowish. Petals small, roundish. Berry ovate or globose, red. (*Dec. Prod.*) A spiny shrub. Dahuria and Siberia, in rocky places. Height 4 ft. to 5 ft. Introduced in 1781. Flowers yellowish green; May and June. Fruit ovate, red; ripe in August.

A very distinct sort, easily known by its cuneated leaves and yellowish flowers. In Messrs. Loddiges's collection there is a fastigiate-growing variety.

858. *R.* Diacántha.

☙ 17 *R.* LACU'STRE *Poir.* The lake-*side Currant-like* Gooseberry.

*Identification.* Poir. Encycl. Suppl., 2. p. 856.; Dec. Prod., 3. p. 478.; Don's Mill., 3. p. 178
*Synonyme.* ?*R.* oxyacanthòides *Michx. Flor. Bor. Amer.* 1. p. 111.
*Engraving.* Our *fig.* 859. from a plant in the Horticultural Society's Garden.

*Spec. Char., &c.* Infra-axillary prickles manifold; the stem hispid with minute prickles. Leaves lobed beyond the middle; glabrous beneath, rather pilose above. Petioles villous. Peduncles ? upright, ? reflexed, bearing 2—3 flowers upon hispid pedicels. Flowers small, yellowish green. Germen hispid. (*Dec. Prod.*) A very prickly shrub. Canada and Virginia, in moist places. Height 4 ft. to 5 ft. Introduced in 1812. Flowers small, yellowish; April and May. Fruit purplish black, about the size of the common black currant; ripe in August.

859. *R.* lacústre.

*Variety.*

☙ R. *l.* 2 *echinàtum*; *R.* echinàtum Dougl. MSS., and Arb. Brit. 1st edit. p. 992.; *R.* armàtum *Hort.*; has the stems prostrate, while those of the species are upright and rather slender.

The flowers are those of the currant, and the prickly stems those of the gooseberry. The fruit is about the size of black currants, in pendulous racemes, purplish black, shining, clothed with hairs, and unpleasant to the taste. The plant forms rather a spreading trailing bush, and is therefore more adapted for spreading over rockwork or stones, than for standing erect by itself. Horticultural Society's Garden.

## § iii. Ribèsia *Dec.* *Currants.*

*Synonymes.* *Ribes* sp. *Lin. and others*; Calobôtrya, Coreosma, and *Rèbis* Spach; Groseilles ou Grappes, or Groseillier commun, *Fr.*; Johannisbeere, *Ger.*; Bessenboom, *Dutch*; Ribes, *Ital.*

*Sect. Char.* Shrubs unarmed. Racemes, for the most part, many-flowered. Leaves plicate. Calyx campanulate or cylindrical. (*Don's Mill.*, iii. p. 185.) Shrubs, the branches of which are without prickles, and the leaves and fruit of which resemble those of the currant more than those of the gooseberry.

A. *Flowers greenish, or greenish yellow, or reddish; and Fruit, in a wild State, red.*

18. *R.* RUBRUM *L.* The *common* red Currant.

*Identification.* Lin. Sp., 290.; Dec. Prod., 3. p. 481.; Don's Mill., 3. p. 187.
*Synonymes.* *R.* vulgàre *N. Du Ham.*; Groseillier commun, *Fr.*; gemeine Johannisbeere, *Ger.*; Aalbessen Boom, *Dutch*; Ribes rosso, *Ital.*
*Engravings.* Smith Engl. Bot., t. 1289.; Krauss, t. 48.; and our *fig.* 860.

*Spec. Char., &c.* Leaves cordate, bluntly 3—5-lobed, pubescent beneath, when young, usually rather tomentose, glabrous above. Racemes drooping. Bracteas ovate, shorter than the pedicels. Calyx flatly campanulate, spreading. Sepals obtuse. Petals obcordate. Fruit quite glabrous. Flowers yellowish. (*Don's Mill.*) An upright shrub. Europe and Siberia, in woods; and throughout Canada to the mouth of the Mackenzie; in the North of England and in Scotland, in mountainous woods, and about the banks of rivers. Height 4 ft. to 6 ft. Flowers greenish yellow; April and May. Fruit red; ripe in July.

860. *R.* rùbrum.

*Varieties.* De Candolle gives the following forms of this species: —

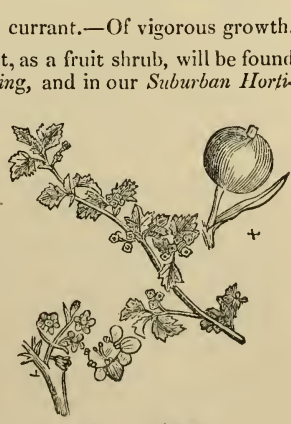
- R. *r.* 1 *sylvéstre* Dec. Fl. Fr. iv. p. 406. — Leaves and berries small. Lobes of leaves short.
- R. *r.* 2 *horténse* Dec. l. c. *R.* rùbrum *Lois. Nouv. Dict.* iii. — Leaves large, sometimes variegated. Berries sweeter and larger than in var. 1. Cultivated in gardens.
- R. *r.* 3 *cárneum* Berl. MSS. ex Dec. Prod. iii. p. 481. *R.* rùbrum doméstícum 2 báccis cárneis *Wallr. Sched.* p. 106. — Leaves rather tomentose beneath. Sepals red. Cells of anthers distant. Berries pale red.
- R. *r.* 4 *variegàtum* Dec. Prod. iii. p. 481., Wallr. l. c., has the berries beautifully variegated; or, rather, distinctly striped with white and red. In cultivation in Austria, and well deserving of a place in every collection, from the beauty and singularity of its fruit.
- R. *r.* 5 *álbum* Desf. Cat. Bot. p. 164. — Berries white.
- R. *r.* 6 *fòliis lúteo variegàtis* Du Ham. has the leaves variegated with yellow, and the fruit red.
- R. *r.* 7 *fòliis álbo variegàtis* Du Ham. has the leaves variegated with white, and the fruit white.
- R. *r.* 8 *sibíricum* Oldaker. The Russian currant.—Of vigorous growth.

The propagation, culture, &c., of the currant, as a fruit shrub, will be found given at length in our *Encyclopædia of Gardening*, and in our *Suburban Horticulturist.*

19. *R.* (R.) ALPINUM *L.* The alpine red Currant.

*Identification.* Lin. Sp., 291.; Dec. Prod., 3. p. 480.; Don's Mill., 3. p. 186.
*Synonyme.* *R.* dioicum *Masters.*
*Engravings.* Schmidt Baum., t. 96.; and our *fig.* 861.

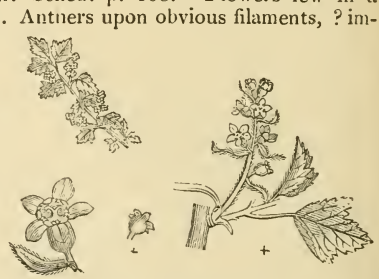
*Spec. Char., &c.* Leaves with 3—5 lobes, obtuse, hairy above, shining beneath. Racemes grouped. Bracteas lanceolate, inflated, sparingly glandulose, mostly larger than the flowers. Petals minute, as if in abortion. Anthers more or less sessile. Styles connate. Berries red. (*Dec. Prod.*) A spreading shrub. Alps of Europe and Si-


861. *R.* (r.) alpinum.

beria; and found in Britain, in woods, both in England and Scotland. Height 3 ft. to 4 ft. Flowers greenish yellow; April and May. Fruit red; ripe in July.

*Varieties.* Berlandier has described two forms of the species, and Dr. Lindley has added a proper variety.

- R. (*r.*) *a.* 1 *stérile* Wallr. Sched. p. 108. *R.* dioícum *Mœnch Meth.* — Flowers many in a raceme, and densely disposed, flat, destitute of a germen, soon falling off. Anthers almost sessile, acute, bearing pollen.
- R. (*r.*) *a.* 2 *baccíferum* Wallr. Sched. p. 108.—Flowers few in a raceme, rather salver-shaped. Antners upon obvious filaments, ? imperfect. Style bifid to a small extent. Germen obvious.
- R. (*r.*) *a.* 3 *pùmilum* Lindl in Hort. Trans. vii. p. 244., and our *fig.* 862.— In every respect the same as the species, but not one third of the size, never exceeding 2 ft. in height, even when cultivated in gardens. The leaves are deeply cut, the flowers small, and the fruit seldom produced.



862. *R.* (r.) a. pùmilum.

- R. (*r.*) *a.* 4 *fòliis variegàtis* Hort. has variegated leaves. Horticultural Society's Garden.

20. R. (R.) PETRÆ'UM *Wulf.* The rock red Currant.

*Identification.* Wulf. in Jacq. Misc., 2. p. 36.; Don's Mill., 3. p. 187.
*Synonymes.* *R.* alpinum *Delarb. Auvergn.* p. 166.; Ribes corallino, *Ital.*; the woolly-leaved Currant, the red Marshmallow-leaved Currant.
*Engravings.* Eng. Bot., t. 705.; and our *fig.* 863.

863. *R.* (r.) petræ'um.

*Spec. Char., &c.* Leaves acuminated, 3—5-lobed, rather cordate, deeply serrated, on long petioles, pilose above. Racemes erect, crowded, rather pubescent. Bracteas shorter than the pedicel. Sepals obtuse. Petals obcordate, small, white. Berries large, deep red, with an acid taste. Fruiting racemes pendulous. (*Don's Mill.*) A spreading shrub. Alps of Carinthia, Savoy, and on almost all the mountains of the continent of Europe. In England, it is found near Eggleston and Conscliffe, in the county of Durham; and in Scotswood Dean, Northumberland. Height 3 ft. to 4 ft. Flowers greenish yellow; May. Fruit red; ripe in July.

21. *R.* (R.) SPICA'TUM *Robs.* The spiked-*flowered* red, *or Tree*, Currant.

*Identification.* Robs. in Lin. Trans., 3. p. 240. t. 21.; Smith Engl. Bot., t. 1290.; Don's Mill., 3 p. 187
*Synonyme.* The Tree Currant.
*Engravings.* Lin. Trans., 3. p. 240. t. 21.; Eng. Bot., t. 1290.; Bert., l. c., t. 2. f. 16.; and our *fig* 864.

*Spec. Char., &c.* Leaves roundish-cordate, 3—5-lobed, covered with soft hairs above, and with tomentum beneath. Racemes erect.

864. *R.* (r.) spicàtum

Flowers more or less pedicellate. Bracteas obtuse, tomentose, much shorter than the pedicels. Sepals roundish-cuneated. Petals oblong. Styles bifid. Berries glabrous, globose, and in colour and taste resembling those of *R.* rùbrum. (*Don's Mill.*) An upright shrub. North of England, in woods near Richmond in Yorkshire, and Piersbridge and Gainford in Durham. Height 4 ft. to 6 ft. Flowers greenish yellow; April and May. Fruit red; ripe in July.

The tree currant affords a fruit rather smaller, and more acrid, than the common red currant; but by crossing and cultivation it might, no doubt, be greatly improved; and, from its comparatively tree-like habits, might be a more convenient fruit shrub in respect to the crops around it.

22. *R.* (R.) CARPA'THICUM *Kit.* The Carpathian red Currant.

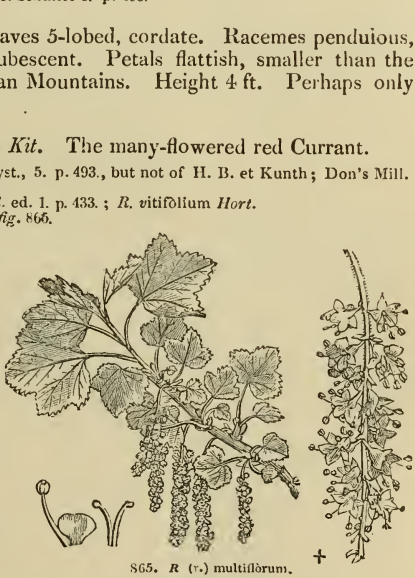
*Identification.* Kit. in Schultes Œstr. Fl., 2. ed. 1. p. 432.; Don's Mill., 3. p. 187.
*Synonyme.* *R.* acérrimum *Rochel ex Rœm. et Schultes* 5. p. 493.
*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* Stem erect. Leaves 5-lobed, cordate. Racemes pendulous, and, as well as the calyxes, pubescent. Petals flattish, smaller than the calyx. (*Don's Mill.*) Carpathian Mountains. Height 4 ft. Perhaps only a variety of *R.* rùbrum.

23. *R.* (R.) MULTIFLO'RUM *Kit.* The many-flowered red Currant.

*Identification.* Kit. in Rœm. et Schultes Syst., 5. p. 493., but not of H. B. et Kunth; Don's Mill. 3. p. 187.
*Synonymes.* *R.* spicàtum *Schultes Œstr. Fl.* ed. 1. p. 433.; *R.* vitifòlium *Hort.*
*Engravings.* Bot. Mag., t. 2368.; and our *fig.* 866.

*Spec. Char., &c.* Leaves 5-lobed, cordate, tomentose beneath. Racemes very long, pendulous, drooping. Bracteas shorter than the flowers. Petioles length of leaves. Petals wedge-shaped. Styles bifid, and sometimes distinctly trifid. (*Don's Mill.*) A spreading shrub, with vigorous branches and large leaves. Croatia. Height 4 ft. to 6 ft. Introduced in 1822. Flowers greenish yellow; April and May. Fruit small, red; ripe in July.



865. *R* (r.) multiflòrum.

The long racemes of flowers, the vigorous growth of the shoots, the large leaves, and the luxuriant habit of the plant, altogether render this a very ornamental sort. From the luxuriance of the flowers and leaves, and of the plant generally, fruit is seldom produced; and, when it appears, it is generally of small size. On account of the gracefulness of the long drooping racemes of flowers, it well deserves a place in collections.

24. *R.* (R.) ALBINE'RVUM *Michx.* The white-nerved-*leaved* red Currant.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 110.; Don's Mill., 3. p. 187.
*Engraving.* Our *fig.* 2092 in p. 1107.

*Spec. Char., &c.* Leaves short, petiolate, deeply and acutely lobed, smoothish, with whitish nerves. Racemes recurved. Flowers small. Berries red, glabrous. (*Don's Mill.*) A shrub. Canada and the Catskill Mountains, in the state of New York. Height 4 ft. Introduced ?. Flowers greenish yellow; April and May. Berries red; ripe in July.

25. *R.* ACUMINA'TUM *Wall.* The pointed-*leaved* Currant.

*Identification.* Wall. Cat.; Royle Illust., p. 225.; Don's Mill 3. p. 187.
*Engraving.* Our *fig.* 866. from a specimen in the Linnæan herbarium.

*Spec. Char., &c.* Branches glabrous. Leaves glabrous above, but with a few scattered hairs beneath, 3—5-lobed; lobes acuminated, serrated. Racemes axillary, erect. Peduncles pubescent. Berries nodding. Calyx campanulate. Petals rounded at the apex. (*Don's Mill.*) A smooth shrub. Nepal, on Sirmore and Emodi. Height 4 ft. to 6 ft. Introduced ? in 1837. Flowers greenish yellow; April and May. Fruit red, about the size of that of the red currant; ripe in July.

866. *R.* (r.) acuminàtum.

* 26. *R.* (R.) TRI'FIDUM *Michx.* The trifid-*calyxed* red Currant.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 110.; Don's Mill., 3. p. 186.
*Engraving.* Our *fig.* 867. from a specimen in Sir W. J. Hooker's herbarium.

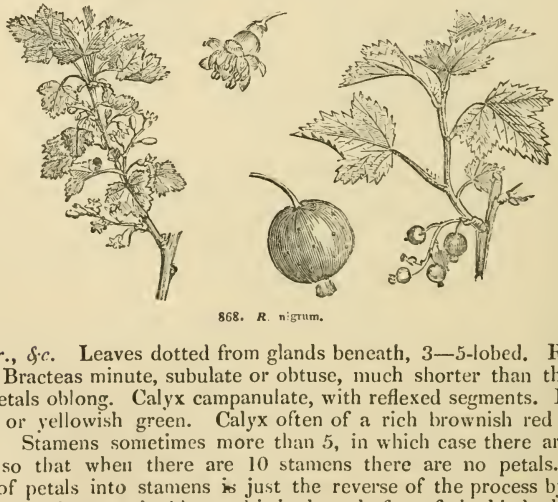
867. *R.* (r.) trifidum

*Spec. Char., &c.* Leaves smooth, moderately lobed. Racemes loosely many-flowered, pubescent. Flowers small. Calycine segments rather trifid. Berries hairy, red. Lobes of leaves acutish. Racemes weak, nearly like those of *R.* rùbrum, but the flowers smaller. Petals purplish, spathulate, rounded at the apex. (*Don's Mill.*) A prostrate shrub. North America, near Quebec, and at Hudson's Bay. Height 1 ft. to 2 ft. Introduced in 1823. Flowers purplish; April and May.

B. *Flowers greenish yellow, sometimes with the Tips of the Sepals and Petals red. Fruit black.*

27. *R.* NI'GRUM *L.* The black Currant.

*Identification.* Lin. Sp., 291.; Don's Mill., 3. p. 190.
*Synonymes.* *R.* ólidum *Mœnch Meth.* 683.; Capis and Poivrier, *Fr.*; schwartze Johannisbeere *Ger.*; Ribes nero, *Ital.*
*Engravings.* Engl. Bot., t. 1291.; and our *fig.* 868.



868. *R.* nigrum.

*Spec. Char., &c.* Leaves dotted from glands beneath, 3—5-lobed. Racemes loose. Bracteas minute, subulate or obtuse, much shorter than the pedicels. Petals oblong. Calyx campanulate, with reflexed segments. Flowers whitish, or yellowish green. Calyx often of a rich brownish red colour, or pink. Stamens sometimes more than 5, in which case there are fewer petals; so that when there are 10 stamens there are no petals. This change of petals into stamens is just the reverse of the process by which single flowers become double; and it is the only fact of the kind which has hitherto been observed. Stigmas bifid. Berries globose, black, glandular. (*Don's Mill.*) A shrub with smoothish branches, strong-smelling leaves.

Europe. Height 4 ft. Flowers yellowish green; April and May. Fruit dark purple; ripe in June and July.

*Varieties.*

R. *n.* 2 *bácca flávida* Hort. — Supposed to be a hybrid between the black and white currants, and to have been originated near Bath, previously to 1827. The fruit is of a dingy greenish yellow; but the plant has the habit and general appearance of *R.* nìgrum.

R. *n.* 3 *bácca víridi* Hort. has the fruit green when ripe. This variety is common in Russia in a wild state. Hort. Soc. Garden.

R. *n.* 4 *fòliis variegàtis* Vilm. — Leaves variegated with yellow streaks.

*Garden Varieties.* Six of these are enumerated in the Horticultural Society's *Fruit Catalogue* of 1831, the best of which are the black Naples and the large black. The fruit of the former variety is very large and handsome, more especially when the plant is grown in deep rich soil, and in a situation rather shady and moist.

The leaves, fruit, and the entire plant are powerfully diuretic. The treatment of the black currant, as a fruit tree, will be found in the *Encyclopædia of Gardening*, and in the *Suburban Horticulturist.*

28. *R.* (N.) TRI'STE *Pall.* The sad-*coloured*, *or dark-blossomed*, black Currant.

*Identification.* Pall. Nov. Act. Pet., 10. p. 378.; Don's Mill., 3. p. 189.
*Synonyme.* *R.* altàicum *Lodd. Cat.*
*Engraving.* Our *fig.* 869. from a living specimen.

869. *R.* (n.) triste.

*Spec. Char., &c.* Leaves 5-lobed. Branches simple, twiggy, bearing leaves and racemes of flowers at the apex. Racemes pendulous, both when in flower and in fruit. Corollas flattish, of a dull brownish red on the outside, and yellowish inside. Petals revolute. Berries small, black, insipid. Root creeping. (*Don's Mill.*) A low shrub. Siberia, on the Mongol Mountains. Height 2 ft. to 3 ft. Introduced in 1820. Flowers brownish red and yellow; April and May. Fruit black; ripe in July. Differs from *R.* nìgrum only in the dull brown colour of the flowers.

29. *R.* (N.) FLO'RIDUM *L'Hérit.* The flowery black Currant.

*Identification.* L'Hérit. Stirp., 1. p. 4.; Ph. Sept., 1. p. 164.; Don's Mill., 3. p. 190.
*Synonymes.* *R.* nìgrum 2. *Lin. Sp.* 291.; *R.* pennsylvánicum *Lam. Dict.* 3. p. 49.; *R.* recurvàtum *Michx. Fl. Bor. Amer.* 1. p. 109., according to Torrey; *Ribèsium* nìgrum, &c., *Dill. Elth.* 2. t. 244. f. 315.
*Engravings.* Schmidt Baum., t. 92.; and our *fig.* 870.

870. *R.* (n.) flóridum.

*Spec. Char., &c.* Leaves full of resinous glands, 3 or 5-lobed, cordate, doubly serrated. Racemes pendulous, pubescent. Bracteas linear, longer than the pedicels. Calyx tubularly campanulate, glabrous: with the segments obtuse, and at length reflexed. Germens and black berries oval-globose, glabrous. This is in many respects nearly allied to *R.* nìgrum; but its more copious and denser flowers, and especially their long bracteas, and more tubular calyxes, will always distinguish it: the solitary pedicel, too, at the base of the flowers, is wanting in this species. Petals oblong, rather erose at the apex; greenish yellow. (*Don's Mill.*) A large shrub. Canada to Virginia, in hedges and woods. Height 4 ft. to 6 ft. Introduced in 1729. Flowers pale yellow; April and May. Fruit black; ripe in July.

*Varieties.*

R. (*n.*) *f.* 2 *grandiflòrum* Hort. *R.* rìgens *Michx. Fl. Bor. Amer* i. p. 110., *Ph. Sept.* i. p. 136.—Flowers and racemes larger than those of the species.

R. (*n.*) *f.* 3 *parviflòrum* Hort. *R.* americànum *Mill.*, *R.* pennsylvánicum *Cels.*, *R.* campanulàtum *Hort.*—Flowers smaller, and the racemes shorter.

30. *R.* (N.) PROCU'MBENS *Pall.* The procumbent black Currant.

*Identification.* Pall. Fl. Ross., 2. p. 35. t. 65.; Don's Mill., 3. p. 186.
*Synonyme.* *R.* polycárpon *Gmel. Syst. Veg.* p. 419.
*Engravings.* Pall. Fl. Ros., 2. p. 35. t. 65.; and our *fig.* 871.

871. *R.* (n.) procúmbens.

*Spec. Char., &c.* Leaves bluntly lobed; lobes serrated, lateral ones a little cut. Racemes erect. Peduncles long, setaceous. Segments of the limb of the flower pubescent, acute, of a purplish colour. Anthers hardly rising from the calyx. Flowers flattish. Berries very grateful to the taste, rufescent when ripe. (*Don's Mill.*) A procumbent shrub. Siberia, in moist places. Height 1 ft. to 2 ft. Introduced in 1804. Flowers greenish yellow; May and June. Fruit brownish; ripe Aug.

31. *R.* (N.) PROSTRA'TUM *Lin.* The prostrate black Currant.

*Identification.* L'Hérit. Stirp., 1. p. 3. t. 2.; Don's Mill., 3. p. 186.
*Synonymes.* *R.* glandulòsum *Ait. Hort. Kew.* ed. 1. p. 279.; *R.* canadénse *Lodd.*
*Engravings.* Schmidt Baum., t. 95.; and our *fig.* 872.

872. *R.* (n.) prostratum.

*Spec. Char., &c.* Leaves deeply cordate, 5—7-lobed, glabrous. Lobes acutely cut, doubly serrate, naked on both surfaces. Racemes erect, loose, slender. Bracteas small, obtuse, much shorter than the pedicels, which are beset with glandular bristles. Calyx rotate. Germens and berries beset with glandular bristles. Berries large and black. (*Don's Mill.*) A prostrate shrub. Newfoundland, throughout Canada, and in the woods on the Rocky Mountains. Height 1 ft. to 3 ft. Introduced in 1812. Flowers greenish yellow; April and May. Fruit black; ripe in July.

*Variety.*

R. (*n.*) *p.* 2 *laxiflòrum.* *R.* affi'ne *Dougl. MSS.*, *R.* laxiflòrum *Pursh Fl. Amer. Sept.* ii. p. 731.—Racemes pubescent. Pedicels divaricate. A very distinct sort. North-west coast of America.

32. *R.* (N.) RESINO'SUM *Pursh.* The resinous black Currant.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 163.; Don's Mill., 3. p. 186.
*Synonymes.* *R.* orientàle *Catros*; R. reclinàtum *Hort.*
*Engravings.* Bot. Mag., t. 1583.; Berl., 1. c., t. 2. f. 10.; and our *fig.* 873.

873. *R.* (n.) resinòsum.

*Spec. Char., &c.* All herbaceous parts of the shrub bear hairs tipped with resinous glands. Leaves 3—5-lobed, roundish. Racemes erect. Calyx flattish. Petals bluntly rhomboid. Bracteas linear, longer than the pedicels. Flowers greenish yellow. ? Berry hairy and black. Perhaps the flowers are diœcious. (*Don's Mill.*) A spreading shrub. North America, on the mountains. Height 3 ft. to 5 ft. Introduced in 1800. Flowers greenish yellow; April and May. Fruit black; ripe in July.

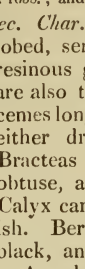
33. *R.* (N.) PUNCTA'TUM *Ruiz et Pav.* The dotted-*leaved* black Currant

*Identification.* Ruiz et Pav. Fl. Per., 2. p. 12. t. 233. f. a.; Don's Mill., 3. p. 187.
*Synonyme.* *R.* glandulòsum *Ruiz et Pavon Fl. Per.* t. 233. f. 6., but not of Ait.; *Don's Mill.*, 3 p. 189., on the authority of Mr. Gordon, of the Horticultural Society.

*Engravings.* Lindl. Bot. Reg., t. 1278. and 1658.; and our *figs.* 874, 875.

874. *R.* (n.) punctàtum.

*Spec. Char., &c.* Leaves 3-lobed, serrated, beset with resinous glands beneath, as are also the bracteas. Racemes longer than the leaves, either drooping or erect. Bracteas cuneate-oblong, obtuse, at length reflexed. Calyx campanulate, yellowish. Berries oblong, hairy, black, and dotted. Petals small, yellow. (*Don's Mill.*) A sub-evergreen shrub. Chili, on hills. Height 3 ft. to 4 ft. Introduced in 1826. Flowers yellow; April and May. Fruit black; ripe in July.



875. *R.* (n.) punctàtum.

The leaves are shining, and of a yellowish green, and, when rubbed, have an agreeable odour. The short close bunches of rich yellow flowers are produced in the axils of the leaves. The plant throws up suckers from the roots: a circumstance which distinguishes it from almost every other species of the genus in British gardens. Dr. Lindley has given two figures of this species in the *Botanical Register*: one, t. 1658., of the wild plant, in which the spikes are pendulous, or nodding; and the other, t. 1278., of the cultivated plant, in which the spikes are erect. He observes that it is hardy enough to live in a dry border without protection, and that it is a rather pretty evergreen shrub. H. S.

876. *R.* heterótrichum.

* 34. *R* (n.) HETERO'TRICHUM *Meyer.* The variable-haired Currant.

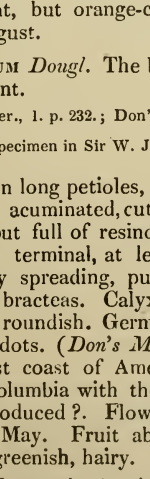
*Identification.* Meyer in Led. Fl. Ros. Alt. Illus., 1. p. 270.; Don's Mill., 3. p. 187.
*Engravings.* Led. Fl. Ros. Alt. Illus., t. 235.; and our *fig.* 876.

*Spec. Char., &c.* Stem erectish. Leaves pubescent, bristly, and glandular, nearly orbicular, 3-lobed; lobes obtuse, toothed. Racemes erect. Pedicels equal in length to the bracteas. Calyx flat, pubescent. Berries puberulous, glandless, bractless. (*Don's Mill.*) An upright shrub. Altaia, on rocks, at the foot of the mountains. Height 2 ft. to 3 ft. Introduced in 1837. Flowers purple; April and May. Fruit like that of the red currant, but orange-coloured; ripe in August.

* 35. *R.* (n.) BRACTEO'SUM *Dougl.* The bracteate Currant.

*Identification.* Hook. Fl. Bor. Amer., 1. p. 232.; Don's Mill., 3. p. 181.
*Engraving.* Our *fig.* 877. from a specimen in Sir W. J. Hooker's herbarium.

*Spec. Char., &c.* Leaves on long petioles, cordate, deeply 5—7-lobed; lobes acuminated, cut, doubly serrated, hispid above, but full of resinous dots beneath; racemes often terminal, at length reflexed. Pedicels erectly spreading, pubescent, exceeding the spathulate bracteas. Calyx rotate, glabrous. Petals minute, roundish. Germens and berries full of resinous dots. (*Don's Mill*) A large shrub. North-west coast of America, at the confluence of the Columbia with the ocean. Height 5 ft. to 8 ft. Introduced ?. Flowers purplish yellow; April and May. Fruit about the size of the red currant, greenish, hairy.



877. *R.* (n.) bracteòsum.

A very remarkable and elegant shrub, with leaves

resembling those of the common sycamore, and nearly as large. It is much to be desired that it could be introduced into British gardens.

36. *R.* VISCOSI'SSIMUM *Pursh.* The very clammy *black* Currant.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 163.; Don's Mill., 3. p. 191.
*Synonyme.* Coreósma viscosíssima *Spach Ann. des Scien. Nat.* 1835.
*Engravings.* Hook. Fl. Bor. Amer., 1. p. 234. t. 74.; and our *fig.* 878.

*Spec. Char., &c.* Leaves cordate, obtuse, 3—5-lobed, deeply crenated. Viscid and glandular pubescence. Glands on both surfaces. Racemes erect, corymbose. Bracteas linear-obovate, rather shorter than the pedicels, which are clothed with glandular hairs. Calyx tubularly campanulate, with erectly spreading obtuse segments. Germens and fruit ovate-oblong, clothed with viscid hairs. Berries oblong-ovate, black. Flowers large and white. (*Don's Mill.*) An upright shrub. North America, on the Rocky Mountains, towards the sources of the Columbia; also on the summits of the hills near the Spokan and Kettle Falls, at an elevation of 8000 ft. above the sea. Height 4 ft to 8 ft. Introduced in 1826. Flowers whitish or yellowish; April and May. Fruit black; ripe in July.

878. *R.* viscosissimum.

A very fine and remarkable species, somewhat difficult to keep.

37. *R.* (N.) HUDSONIA'NUM *Richardson.* The Hudson's *Bay* black Currant.

*Identification.* Richards in Frankl. First Journ., ed. 2. append. p. 6.; Don's Mill., 3. p. 190.
*Synonyme.* *R.* petiolàre *Dougl. Hort. Trans.* 7. p. 514.
*Engraving.* Our *fig.* 879. in flower, and *fig.* 880. in fruit, from a specimen in Dr. Lindley's herbarium.

879. *R.* (n.) hudsoniànum.

*Spec. Char., &c.* Branches erect. Leaves 3-lobed, quite glabrous above, full of resinous dots beneath, and, as well as the petioles, villous. Germens dotted. Berries globose, glabrous. black. Racemes erect, pubescent. Bracteas short. Segments of the calyx, which is campanulate, spreading. Flowers small. Petals white. The fruit, and peculiar odour of the plants. are those of *R.* nìgrum. (*Don's Mill.*) An erect shrub. North America, from Hudson's Bay to the Rocky Mountains, in the west, and as far north as lat. 57°, including the mountains of Columbia, about the Kettle Falls. Height 3 ft. to 4 ft. Introduced in ? 1820. Flowers whitish; April and May. Fruit black; ripe in July. Horticultural Society's Garden.

880. *R.* (n.) hudsoniànum.

38. *R.* GLACIA'LE *Wall.* The icy *black* Currant.

*Identification.* Wall. Cat., No. 6833.; Don's Mill., 3. p. 189.
*Engraving.* Our *fig* 881. from a specimen in the Linnæan herbarium.

*Spec. Char., &c.* Bracteas smooth. Leaves glabrous above, but with few scattered bristly hairs beneath, cordate at the base, 3—5-lobed at the apex;

lobes acute, serrated. Petioles long, serrated at the base. Racemes drooping. Calyx campanulate. Petals longer than the calyx. Flowers white. Berries black. (*Don's Mill.*) A shrub. Nepal, on Emodi and Gossainthan. Height 4 ft. to 6 ft. Introduced in 1823. Flowers white; April and May. Fruit black; ripe in July. Hort. Soc. Garden.

881. *R.* glacìale.

### 39. *R.* INE'BRIANS *Lindl.* The intoxicating Currant.

*Identification.* Lindl. in Bot. Reg., t. 1471.; Don's Mill., 3. p. 190.
*Engravings.* Bot. Reg., t. 1471.; and our *fig.* 882.

*Spec. Char., &c.* Leaves roundish, deeply 3—5-lobed, and deeply toothed, truncate at the base, glandular on both surfaces. Petioles pubescent. Peduncles 3—5-flowered, pendulous. Flowers aggregate. Calyx tubular, glandular, with the segments recurved. Calyx greenish white, with the tube 4 lines long. Leaves smelling like those of *R.* flòridum. (*Don's Mill.*) An upright shrub. North America. Height 3 ft. to 4 ft. Introduced in 1827. Flowers greenish white; April. Fruit amber-coloured; ripe in July.

882. *R.* inèbrians.

This species was received from Mr. Floy of New York, under the name of the intoxicating currant, but without any other account of its properties. The berries may probably possess some narcotic quality.

### 40. *R.* CE'REUM *Dougl.* The waxy-*leaved* Currant.

*Identification.* Dougl. in Hort. Trans., 7. p. 512.; Don's Mill., 3. p. 190.
*Engravings.* Bot. Reg., t. 1263.; and our *fig.* 883.

*Spec. Char., &c.* Leaves small, cordate, lobed, serrated, clothed with glandular pubescence, glabrous, glaucous, full of white glands above. Racemes pendulous, rather capitate. Bracteas ovate, adpressed to the germens, which are glabrous. Flowers nearly sessile, cylindrical, rather angular. Calycine segments small, reflexed. (*Don's Mill.*) A low bush. North-west America, on the banks of the Columbia, and its southern tributary streams, from the Great Falls to the Rocky Mountains. Height 2 ft. to 3 ft. Introduced in 1827. Flowers whitish; April. Fruit amber; ripe in July.

883. *R.* cèreum.

In its small foliage and few-flowered racemes, this species resembles the gooseberry tribe; but it has no thorns. The flowers are rather large and white, with a slight tinge of green, and are rather downy. White waxy dots like scales cover the upper surface of the leaf; whence the specific name.

C. *Flowers deep red. Fruit black.*

41. *R.* SANGUI'NEUM *Pursh.* The bloody, *or red, flowered* Currant.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 164.; Don's Mill., 3. p. 191.
*Synonymes.* *R.* malvàceum *Smith* in *Rees's Cycl.*; Calobôtrya sanguínea *Spach.*
*Engravings.* Hort. Trans., 7. t. 13.; Bot. Reg., t. 1349.; and our *fig.* 884.

*Spec. Char., &c.* Leaves cordate, somewhat 5-lobed, serrated, veiny, smoothish above, but clothed with villous tomentum beneath. Racemes drooping, pubescent, twice the length of the leaves. Calyx tubularly campanulate, with oblong, obtuse, spreading segments, exceeding the petals, which are red, and quite entire. Bracteas obovate-spathulate. Berries turbinate, hairy. (*Don's Mill.*) A large branchy smooth shrub. North-west coast of America, in rocky situations, by the sides of streams. Height 4 ft. to 8 ft. Introduced in 1826. Flowers deep rose; March and April. Fruit purplish, with a glaucous bloom; ripe in August.

884. *R.* sanguíneum.

*Varieties.*

R. *s.* 2 *glutinòsum.* *R.* glutinòsum *Benth. Hort. Trans.* 2d ser. vol. i. p. 476., *R.* angústum *Dougl. MS.* (Our *fig.* 885.)—The foliage is destitute of down, and slightly viscous. The racemes are rather larger than in the species, and the flowers are of a very pale rose colour. This variety comes into leaf a month before the species.

885. *R.* s. glutinòsum

886. *R.* s. malvàceum.

R. *s.* 3 *malvàceum.* *R.* malvàceum *Benth.* l. c. (Our *fig.* 886.)—Leaves rough and hispid on the upper side, and clothed underneath with a whitish cottony down. The racemes of flowers are shorter and closer; and each flower is almost sessile on the common stalk. In colour, the flowers are rather darker than those of *R.* s. glutinòsum, and have more of a lilac tinge.

R. *s.* 4 *àtro-rùbens* Hort.—Flowers and racemes rather smaller, and of a much deeper and darker red, than those of the species. Horticultural Society's Garden.

By far the most ornamental species of the genus. It is easily propagated, and as hardy as the common black currant. It flowers profusely; and, coming into bloom early in the season, forms the most splendid bush to be seen in British shrubberies, from the middle or end of March to the beginning or middle of May. A great many seeds were sent over by Mr. Douglas, a number of which were distributed by the Horticultural Society; and the plants produced from them have varied in the colour of their flowers, from pale pink to deep red. The plants, also, seed freely in this country; and hence a number of varieties have been originated by nurserymen, independently of *R.* s. malvàceum and *R.* s. glutinòsum, which differ from the species, not only in the shades of colour of their flowers, but also in their leaves. The variety which has the darkest-coloured flowers is *R.* s. àtro-rùbens.

42. *R.* A'TRO-PURPU'REUM *Meyer.* The dark-purple-*flowered* Currant.

*Identification.* Meyer in Led. Fl. Ross. Alt. Ill. t. 231.; Fl. Alt., 1. p. 268.; Don's Mill., 3. p. 191.
*Engravings.* Led. Fl. Ross. Alt. Ill., t. 231.; our *fig* 887. from a living plant in the Birmingham Botanic Garden.; and *fig.* 888. from Ledebour.

887. *R.* àtro-purpùreum.

*Spec. Char., &c.* Stem erect. Leaves pubescent, nearly orbicular, cordate, 3—5-lobed; lobes acute, serrated. Racemes drooping. Pedicels exceeding the bracteas. Calyxes campanulate, ciliated. Berries glabrous, and bractless; dark purple, and the size of those of the common currant. (*Don's Mill.*) An upright shrub. Altaia, on mountains and subalpine places on the river Ursal; and also at the river Tscharysch. Height 4 ft. to 6 ft. Flowers deep purple; April and May. Fruit dark purple; ripe in July.

888 *R.* àtro-purpùreum.

*Varieties.*

- R. *a.* 1. — Flowers deep purple. Leaves rather pubescent beneath, but smooth and glabrous above, as well as the branches.
- R. *a.* 2.— Leaves rather pubescent beneath, but hispid from bristles above, as well as the petioles and stems. Found near the river Volschoi Ulegumen.
- R. *a.* 3.—Flowers paler. Leaves pubescent above, but most so below. Branches smooth.

## § iv. *Symphócalyx* Dec.

*Derivation.* From *sumphuō*, to grow together, and *kalux*; in reference to the sepals of the calyx of the species belonging to this section.

*Sect. Char.* The calyxes tubular, and yellow. The racemes many-flowered. Leaves compassing the bud. Unarmed shrubs. (*Dec. Prod.*, iii. p. 483.)

43. *R.* AU'REUM *Pursh.* The golden-*flowered* Currant.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 164.; Don's Mill., 3. p. 191.
*Synonymes* *R.* palmàtum *Desf. C. Hort. Paris.*; Chrysobótrya revolùta *Spach.*
*Engravings.* Berl., l. c., t. 2. f. 23.; Bot. Reg., t. 125.; and our *fig.* 889.

*Spec. Char., &c.* Quite glabrous. Leaves 3-lobed; lobes divaricate, with a few deep teeth, shorter than the petioles, which are ciliated at the base. Calyxes tubular, longer than the pedicels. Tube slender. Segments oblong, obtuse. Petals linear, much shorter than the calycine segments. Bracteas linear, length of the pedicels. Style entire. Berries glabrous. Flowers golden yellow. Fruit yellow, seldom black, and of an exquisite flavour. (*Don's Mill.*) An upright branchy shrub, which before blowing has the appearance of a species of Cratæ'gus. North-west America, in light gravelly soils, from the Great Falls of the Columbia River to the mountains, and on the southern branches. Height 6 ft. to 8 ft. Introduced in 1812. Flowers yellow; April and May. Fruit yellow, seldom black; ripe in August.

889. *R.* aûreum.

*Varieties.*

- R. *a.* 1 *præ'cox* Lindl. in Hort. Trans. vii. p. 242. *R.* frágrans *Lod.* (Bot. Cab., t. 1533.; and our *fig.* 890.) — Flowers earlier. Leaves cuneated at the base, pubescent beneath; lobes deeply serrated.

890. *R.* frágrans.

Berries copious, earlier, turbinate. Racemes bracteate.

R. *a.* 2. *villòsum* Dec. Prod. iii. p. 483. *R.* longiflòrum *Fraser's Cat.* 1813.—Leaves rather villous.

R. *a.* 3 *serótinum* Lindl. l. c., and our *fig.* 891. — Flowers late. Leaves of various forms, smoothish beneath; lobes deeply serrated. Berries few, late, and round in shape. Racemes naked.

891. *R.* a. serótinum.

All the forms of this species are highly ornamental, from their fine, large, bright yellow flowers, which are produced in abundance; and their smooth, glossy, yellowish green leaves. The plants are, also, more truly ligneous, and of greater duration, than those of most other species of *Ribes*. Next to *R.* sanguíneum, and its varieties, they merit a place in every collection.

44. *R.* (A.) TENUIFLO'RUM *Lindl.* The slender-flowered Currant.

*Identification.* Lindl. in Hort. Trans., 7. p. 242.; Bot. Reg., 1274.; Don's Mill., 3. p. 191.
*Synonymes.* *R.* aúreum *Colla Hort. Rip. Append.* 3. t. 1. f. A.; *R.* flàvum *Berl.* in *Dec. Prod.* 3. p. 483.; *R.* missouriénsis *Hort.*; Chrysobótrya Lindley*àna* Spach.
*Engravings.* Bot. Reg., t. 1274.; and our *fig.* 892.

*Spec. Char., &c.* Unarmed, quite glabrous. Leaves roundish, 3-lobed, mealy; lobes bluntly toothed at the apex. Racemes pendulous, many-flowered. Calyx tubular, glabrous, longer than the pedicels, coloured. Petals quite entire, linear, one half shorter than the segments of the calyx, which are oblong and obtuse. Bracteas linear, length of the pedicels. Berries glabrous. (*Don's Mill.*) An upright branchy shrub. North America, on the rocky tracts of the Columbia, near the head waters of the Missouri. Height 6 ft. to 8 ft. Introduced in 1812. Flowers yellow; April and May. Fruit purple or yellow; ripe in August.

892. *R.* (a.) tenuiflòrum.

*Varieties.*

R. (*a.*) *t.* 1 *frúctu nìgro.*—Berries changing from yellow to red, and finally acquiring a deep blackish purple colour.

R. (*a.*) *t.* 2 *frúctu lùteo.*—Fruit yellow; always retaining the same colour.

In habit, this species is more erect than *R.* aúreum, and has the young wood more thinly clothed with leaves; its whole appearance is also paler, during the early part of the season. The flowers are not more than half the size of *R.* aúreum; and have entire, not notched, petals. The fruit is about the size of the red currant, of an agreeable flavour, but possessing little acidity.

45. *R.* (A.) FLA'VUM *Coll.* The yellow-*flowered* Currant.

*Identification.* Coll. Hort. Ripul. Append., 3. p. 4. t. 1. f. β.; Don's Mill., 3. p. 191.
*Synonymes.* *R.* aúreum 3 sanguíneum *Lindl.* in *Hort. Trans.* 7. p. 242.; *R.* palmàtum *Desf. Hort. Par.*; *R.* aúreum *Ker Bot. Reg.* t. 125., but not of Pursh; Chrysobótrya intermèdia *Spach.*
*Engravings.* Coll. Hort. Ripul. Append., 3. p. 4. t. 1. f. 2.; and our *figs.* 893. and 894.

*Spec. Char., &c.* Unarmed, quite glabrous. Young leaves 3-lobed; adult

893. *R.* flàvum.

ones usually 5-lobed, deeply toothed, about equal in length to the ciliated petioles. Racemes short, 4—5-flowered. Calyx tubular, much longer than the pedicels. Tube slender. Segments rather spathulate, reflexed. Petals one half shorter than the calycine segments. Bracteas elliptic. Berries oblong, glabrous. Flowers yellow. (*Don's Mill.*) An upright shrub. North America. Height 6 ft. to 8 ft. Introduced in 1812. Flowers yellow; April and May. Fruit purple or yellow; ripe in August.

A very ornamental species, of vigorous growth, fine shining foliage, and of greater duration than many species of *Ribes*.

894. *R.* flàvum.

## Order XXXIII. ESCALLONIA'CEÆ.

*Ord. Char.* *Calyx* 5-toothed. *Petals* 5, forming a tube by their cohesion, finally separating; æstivation imbricated. *Stamens* definite. *Disk* epigynous, surrounding the base of the style. *Ovarium* 2-celled, containing two large placentas in the axis. *Stigma* 2-lobed. *Capsule* crowned by the calyx and style, dehiscing at the base. *Seeds* numerous, minute. *Albumen* oily. The cohering petals, oily albumen, and situation of placentas separate this from Grossulariàceæ. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous or evergreen; lanceolate serrated or entire. *Flowers*, terminal in spikes or racemes.—Shrubs, natives of North and South America, of which two genera are in British gardens, which are thus contradistinguished: —

I'TEA. Stigma capitate. Capsule compressed.
ESCALLO'NIA. Stigma peltate, 2-lobed. Capsule baccate.

### Genus I.



### I'TEA *L.* The Itea. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Lin. Gen., 275.; Dec. Prod., 4. p. 6.; Don's Mill., 3. p. 396.
*Synonymes.* Cedrèla *Lour.*; Diconángia *Michx.*
*Derivation.* *Itea* is the Greek name of the willow, which is given to this genus on account of the quick growth of the *I'tea virgínica*.

*Gen. Char.* *Calyx* bell-shaped, with 5 teeth, persistent. *Petals* 5, their æstivation valvate. *Stamens* 5, shorter than the petals. Both petals and stamens inserted upon the tube of the calyx. Teeth of calyx, petals, and stamens, alternate with one another. *Ovary* not connate with the calyx. *Style*, at first, seemingly one; afterwards it parts into two portions: hence, there are rather 2 styles connate. *Stigmas* capitate, mostly divided by a furrow. *Carpels* two, connate into a capsule of 2 cells, that has 2 furrows, and parts from bottom to top. *Seeds* in two rows along the introflexed margins of the carpels. (*Dec. Prod.*)

*Leaves* simple, alternate, exstipulate, deciduous; lanceolate, toothed. *Flowers* small, white, in simple terminal racemes. — A shrub, native of North America.

1. *I.* VIRGI'NICA *L.* The Virginian Itea.

*Identification.* Lin. Sp., 289.; Don's Mill., 3. p. 196.
*Engravings.* N. Du Ham., 6. t. 9.; Bot. Mag., t. 2409.; and our *fig.* 895.

*Spec. Char., &c.* Leaves lanceolate, acutely toothed. Racemes simple, terminal. (*Don's Mill.*) A deciduous shrub. Pennsylvania to Carolina. Height 3 ft. to 5 ft. Introduced in 1744. Flowers white; June to August. Carpels brown; ripe in October.

895. *I.* virgínica.

It may be propagated by cuttings, but more readily by layers, suckers, or seeds, which are annually imported from America; and it thrives best in a sandy or peaty soil, kept moist. The plant, to be kept in vigour, should have the old wood frequently cut down to the ground. When grown in a situation that is rather moist, its flowers make a fine appearance late in the season, when there are few other shrubs in blossom.

## GENUS II.

ESCALLO'N*IA* Mutis. THE ESCALLONIA. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Mutis in Lin. fil. Supp., t. 21.; Dec. Prod., 4. p. 2.; Don's Mill., 3. p. 192.
*Synonyme.* Stereóxylon *Ruiz et Pav. Fl. Per. Prod.* p. 38.
*Derivation.* From *Escallon*, the pupil and companion of Mutis, during his travels in New Spain.

*Gen. Char., &c.* *Calyx* tube semiglobose, adnate to the ovarium; limb 5-toothed or 5-lobed. *Petals* 5, arising from the calyx. *Stamens* 5; anthers ovate-oblong. *Stigma* peltate. *Style* filiform, permanent. *Capsule* baccate. *Seeds* numerous. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, sub-evergreen; serrated or entire, full of resinous glands. *Flowers* terminal, bracteate, variously disposed, white or red.—Sub-evergreen shrubs, natives of South America, more especially of Chili. Propagated with the greatest ease by cuttings; and growing freely in any common soil.

1. E. RU'BRA *Pers.* The red-*flowered* Escallonia.

*Identification.* Pers. Ench., 2. p. 235.; Hook. Bot. Mag., t. 2890., and Don's Mill., 3. p. 193.
*Synonyme.* Stereóxylon rùbrum *Ruiz et Pav.*
*Engravings.* Ruiz et Pavon Fl. Per., 3. t. 236. f. b.; Bot. Mag. t. 2890.; and our *fig.* 896.

*Spec. Char., &c.* Shrubs smoothish; branches erect, when young clothed with glandular villi. Leaves obovate-oblong, acuminated, serrated, full of resinous dots beneath. Peduncles 2—7-flowered, bracteate. Lobes of calyx denticulated. Petals spathulate. (*Don's Mill.*) A sub-evergreen shrub. Chili, on the mountains of Colocolo, and in the fissures of rocks, and about Valparaiso. Height 3 ft. to 6 ft. Introduced in 1827. Flowers red; July to September.

896. E. rùbra

*Varieties.* In the *Bot. Misc.*, iii. p. 252., three forms are recorded: —
*E. r.* 1 *glabriúscula* Hook. et Arn., with glandular branches, leaves

highly pubescent, and red flowers, which may be considered as the species.

- *E. r.* 2 *albiflòra* Hook. et Arn., E. glandulòsa *Bot. Cab.* t. 291., with white flowers.
- *E. r.* 3 *pubéscens* Hook. et Arn., with pubescent branches, and red flowers.

Very desirable shrubs for training against a wall.

### 2. E. MONTEVIDE'NSIS *Dec.* The Monte Video Escallonia.

*Identification.* Dec. Prod., 4. p. 4.; Don's Mill., 3. p. 194.
*Synonyme.* E. floribúnda var. β montevidénsis *Schlecht.* in *Linnæa* l. p. 543.; E. bifida *Link et Otto Abbild.* t. 23.
*Engravings.* Link et Otto Abbild., t. 23.; Bot. Reg., 1467.; and our *fig.* 897.

*Spec. Char., &c.* Shrub glabrous. Branches erect. Leaves oblong, cuneated at the base, acutish, finely serrated, full of resinous dots beneath. Panicle terminal, many-flowered, crowded, intermixed with foliaceous bracteas. Lobes of calyx acute, rather denticulated. Petals obovate, oblong. (*Don's Mill.*) A sub-evergreen shrub. Brazil, in many places, but especially on the sandy banks and pastures of the Uruguny. Height 6 ft. to 10 ft. Introduced in 1827. Flowers white, very like those of the hawthorn, with a style which becomes double the length of the fruit after flowering; July to September.

897. E. montevidénsis.

*Variety.*

- *E. m.* 2 *floribúnda*, E. floribúnda *H. B. et Kunth*, is a native of New Granada, on the Andes, with white flowers, and shining leaves, which are clammy when young. A very distinct variety considered by some as a species.

This species forms a remarkably vigorous-growing bush, with long, flexible, rope-like shoots, and is very prolific in flowers. It is so hardy as to have stood through several winters, as a bush, in the open ground of the Kensington Nursery, though it was killed by the winter of 1837–8.

### 3. E. ILLINI'TA *Presl.* The varnished Escallonia.

*Identification.* Presl Reliq. Hænk. vol. ii. p. 49.; Don's Mill., 3. p. 193.
*Engravings.* Presl l. c., t. 59.; Bot. Reg., t. 1900.; and our *fig.* 898.

*Spec. Char., &c.* Quite glabrous. Branches spreading, anointed with resin. Leaves petiolate, obovate or oblong obtuse, crenulated, attenuated at the base, beset with glandular dots above, and clammy. Panicle terminal, many-flowered, leafy. Petals on long claws. Capsule turbinate, 5-nerved. (*Don's Mill.*) An evergreen shrub. Chili, at the streamlet of Los Lunes. Height 3 ft. to 6 ft. Introd. 1833. Flowers white; Aug. and Sept.

The whole plant emits a powerful odour, which to some persons resembles the smell of swine, and to others that of melilot or fenugreek. One of the hardiest species of the genus, and, like all the others, well deserving a place in collections.

898. E. illinita.

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*Other Species of Escallònia.*—*E. resinòsa* Pers., Stereoxylon resinòsum *Ruiz et Pavon* (*Don's Mill.*, iii. p. 94.), is a native of Peru, on the cold parts of hills, which stood out at Kew for five years, till it was killed by the winter of 1837–8

*E. pulverulénta* Pers., Stereóxylon pulveruléntum *Ruiz et Pav.*, is a shrub, hairy in every part, with white flowers; growing to the height of 8 or 10 feet. It is a native of Chili; and plants of it were in the Horticultural Society's Garden from 1831 till 1837–8. Twenty other species are described in Don's *Miller*, iii. p. 193. to p. 195., all natives of South America, and probably as hardy as those above mentioned; but it does not appear that any of them have been introduced.

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## Order XXXIV. SAXIFRA'GEÆ,

### Tribe HYDRA'NGEÆ.

*Ord. Char.* *Calyx* 4—5-parted. *Petals* 5, inserted between the lobes of the calyx. *Stamens* 5 or 10. *Disk* perigynous. *Ovarium* of 2 to 5 carpels. *Stigmas* sessile. *Fruit* 1—2-celled. *Seeds* numerous, minute. *Albumen* fleshy. Absence of stipules distinguishes this from *Rosàceæ* and *Cunoniàceæ*. (*G. Don.*)

*Leaves* simple, opposite, exstipulate, deciduous. *Flowers* in large corymbs, pink or white, often sterile.—Suffruticose shrubs, natives of North America and Asia. Easily propagated by cuttings, and growing freely in any soil that is rather moist.

### Genus I.

### HYDRA'NGEA *L.* The Hydrangea. *Lin. Syst.* Decándria Di-Trigýnia.

*Identification.* Lin. Gen., 557.; Dec. Prod., 4. p. 13.; Don's Mill., 3. p. 232.
*Synonymes.* Hydrángea, and Horténsia Juss.; Idrangea, *Ital.*
*Derivation.* From *hudōr*, water, and *aggos*, a vessel; with reference to some of the species which grow in water; or, as some suppose, from the capsule resembling a cup.

*Gen. Char.* *Flowers* generally deformed; but some of them hermaphrodite and fertile. *Calyx* tube hemispherical, 10-ribbed, rather truncate, adnate to the ovarium; limb permanent, 5-toothed. *Petals* 5, regular. *Stamens* 10. *Styles* 2, distinct. *Capsule* 2-celled, with introflexed valves, crowned by the teeth of the calyx and styles, flattish at the top, opening by a hole between the styles. *Seeds* numerous, reticulated. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, deciduous; serrated or lobed. *Flowers* corymbose, pink, or yellowish white; the marginal ones sterile, and large, in consequence of the teeth of the calyx being dilated into broad, petal-like-coloured segments; the rest of the sterile flower partially abortive. — Shrubs, natives of North America and Asia.

#### A. *Species Natives of North America.*

1. H. arbore'scens *L.* The arborescent Hydrangea.

*Identification.* Lin. Sp., p. 568.; Don's Mill., 3. p. 232.; Lodd. Cat., ed. 1836.
*Synonymes.* H. vulgàris *Michx. Fl. Bor. Amer.* 1. p. 268.; H. frutéscens *Mœnch Meth.* 1. p. 106.
*Engravings.* Bot. Mag., t. 437.; and our *fig.* 899.

899. H. arborescens.

*Spec. Char., &c.* Leaves ovate, rather cordate; superior ones lanceolate, coarsely toothed, pale and puberulous beneath. Corymbs flattish. Flowers nearly all fertile. Flower buds obtuse. Flowers white, small, having an agreeable odour. (*Don's Mill.*) A low shrub. Penn-

sylvania to Virginia. Height 4 ft. to 6 ft. Introduced in 1736. Flowers white, having an agreeable odour ; July and August.

*Variety.*

*H. a.* 2 *díscolor* Ser. in Dec. Prod. 4. p. 14.—Leaves almost white beneath from tomentum.

It prefers a moist soil, and is readily propagated by division of the roots.

2. H. (A.) CORDA'TA *Pursh.* The cordate-*leaved* Hydrangea.

*Identification.* Pursh Sept., 1. p. 309., exclusive of the synonyme of Michx. ; Don's Mill., 3. p. 232.
*Engravings.* Wats. Dendr. Brit., t. 42. ; and our *fig.* 900.

900. H. (a.) cordàta.

*Spec. Char., &c.* Leaves broadly ovate, acuminated, rather cordate at the base, coarsely toothed, glabrous beneath. Flowers all fertile, small, white, and sweet-scented. (*Don's Mill.*) A low shrub. Carolina, on mountains, and on the banks of the Missouri, above St. Louis. Height 6 ft. to 8 ft. Introd. in 1806. Flowers white ; July, Aug.

*Variety.*

*H. (a.) c.* 2 *geórgica*, H. geórgica *Lodd. Cat.*, differs from the species in flowering a little later, and being rather more robust.

We agree with Torrey, in thinking this merely a variety of H. arboréscens.

3. H. NI'VEA *Michx.* The snowy-*leaved* Hydrangea.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 268. ; Don's Mill., 3. p. 232.
*Synonyme.* H. radiàta *Wal. Fl. Car.* 251., ex *Michx.*, but not of Smith.
*Engravings.* Wats. Dendr. Brit., t. 43. ; and our *fig.* 901.

901. H. nívea.

*Spec. Char., &c.* Leaves cordate, oval, acuminated, sharply toothed, clothed with white tomentum, or pubescence, beneath. Corymbs flattish. Sepals of sterile flowers entire. Flower buds depressed. Flowers white, rather large. (*Don's Mill.*) A low suffrutescent shrub. North America, on the Savannah River. Height in America 4 ft. to 6 ft. ; in England 2 ft. to 3 ft. Introd. 1786. Flowers white ; July and August.

*Variety.*

*H. n.* 2 *glabélla* Ser. in Dec. Prod. 4. p. 14.—Leaves nearly glabrous beneath. Flowers all fertile. This variety has, probably, originated in culture.

4. H. QUERCIFO'LIA *Bartram.* The Oak-leaved Hydrangea.

*Identification.* Bartram Trav., ed. Germ., p. 336. t. 7.; Don's Mill., 3. p. 233.
*Synonyme.* H. radiàta *Smith Icon. Pict.* 12., but not of Walt.
*Engravings.* Bot. Mag., t. 975. ; and our *fig.* 902.

902. H. quercifòlia.

*Spec. Char., &c.* Leaves large, ovate, serrately lobed, and toothed, pilose beneath. Corymbs rather panicled, flattish. Sepals of sterile flowers entire. Flower buds depressed. Flowers white. Sterile, or outer, ones of the corymbs large. (*Don's Mill.*) A shrub. Florida. Height 4 ft. to 6 ft. in America ; 2 ft. to 3 ft. in England. Introduced in 1803. Flowers white ; June to September.

This is by far the most interesting of the North American hydrangeas, from its large, deeply lobed, and sinuated leaves ; and its

fine, large, nearly white corymbs of flowers, which are sterile, and appear from June till they are destroyed by frost. Culture as in the other species; but it is essential that the situation be sheltered, and the soil kept somewhat moist, otherwise the leaves are not perfectly developed, and the branches are apt to be broken off by high winds.

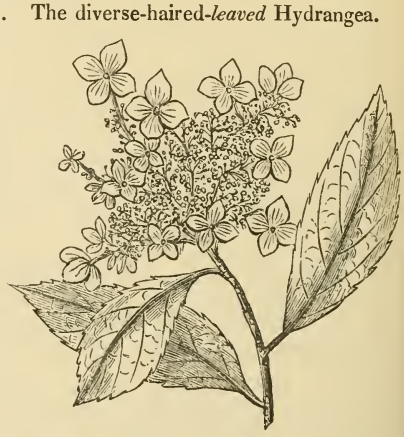
B. *Species Natives of Asia.*

5. H. HETEROMA'LLA *D. Don.* The diverse-haired-*leaved* Hydrangea.

*Identification.* D. Don Prod. Fl. Nep., p. 211.; Don's Mill., 3. p. 233.
*Engraving.* Our *fig.* 903. from a specimen in the Linnæan herbarium.

*Spec. Char., &c.* Leaves oval, acuminated, sharply serrated, tomentose beneath, 5 in. long, and nearly 3 in. broad. Corymbs supra-decompound, diffuse, pilose. Sepals of sterile flowers roundish oval, quite entire. Flowers white. (*Don's Mill.*) A shrub. Nepal, at Gossainthan. Height 4 ft. to 6 ft. Introduced in 1821. Flowers white; ? July, August.

A very vigorous-growing plant in its native country, and probably as hardy in British gardens as some of the North American species.



903. H. heteromálla.

6. H. ALTI'SSIMA *Wall.* The tallest Hydrangea.

*Identification.* Wal. Tent. Fl. Nep., 2. t. 50.; Don's Mill. 3. p. 233.
*Engravings.* Wall. l. c., t. 50.; and our *fig.* 904.

*Spec. Char., &c.* Leaves ovate, acuminated, serrated, smoothish. Corymbs flattish. Sterile flowers few, on pilose peduncles; alabastra, or fertile flowers, conical. (*Don's Mill.*) A rambling shrub, which, according to Dr. Royle, climbs lofty trees. Nepal, on mountains. Height ?. Introduced in 1839. Flowers white; ? July, August.

904. H. altíssima.

*Other Species of Hydrángea.*—*H. Horténs*ia *Sieb.*, H. horténsis *Smith*, a well-known ornament of gardens, is suffrutescent and hardy in the S. of England. Even in the climate of London it lives in sheltered situations in the open garden, because, though frequently killed to the ground, it always springs up again, and even flowers. — *H. vestìta* Wall., a native of Nepal, is probably as hardy as H. altíssima, and would be a most desirable introduction.

## ORDER XXXV. UMBELLA'CEÆ.

ORD. CHAR. *Calyx* entire or toothed. *Petals* 5, entire, emarginate, or 2-lobed, each usually drawn out into a replicated or involuted point. *Stamens* 5. *Ovarium* 2-celled. *Styles* 2. *Fruit* of 2 separating pericarps, adhering by their faces to the carpophore. *Fruit* ribbed or winged. *Peri-*

*carps* 1-seeded. — Habit alone is sufficient to distinguish this order. (*D. Don.*)

*Leaves* simple, alternate, exstipulate, evergreen or sub-evergreen; quite entire. *Flowers* greenish yellow. — There are only one or two ligneous species hardy in British gardens, and these belong to the genus *B*upleùrum.

## Genus I.

### *B*UPLEU'RUM *Tourn.* The Bupleurum, *or Hare's Ear.*

*Lin. Syst.* Pentándria Digýnia.

*Identification.* Tourn. Inst., 309. t. 163.; Dec. Prod., 4. p. 127.; Don's Mill., 3. p. 296.
*Synonymes.* Tenòr*ia* and *B*upréstis *Spreng. Syst.* 1. p. 880.; Bupliore, or Oreille de Lièvre, *Fr.*; Hasenöhrlien, *Ger.*
*Derivation.* From *bous*, an ox, and *pleuron*, a side; from the supposed quality of swelling cattle that feed on some of the species of the genus. The name of Hare's Ear, which is preserved in the French and German, has reference to the shape of the leaves.

*Gen. Char.* *Calyx* margin obsolete. *Petals* roundish, entire, strictly involute, with a broad retuse point. *Fruit* compressed from the sides. *Seed* teretely convex, flattish in front. (*Don's Mill.*)

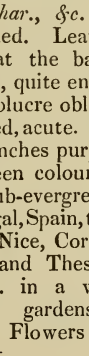
*Leaves* as in the order. — Smooth shrubs, natives of Europe and Africa, and some of Asia. Only one hardy species is in cultivation in British gardens.

1. *B.* fruticò'sum *L.* The shrubby Bupleurum, *or Hare's Ear.*

*Identification.* Lin. Sp., 343.; Don's Mill., 3. p. 301.; Webb Iter Hispan., p. 44.
*Synonymes.* Tenòr*ia* fruticòsa *Spreng.* in *Schultes Syst.* 6. p. 376.; *B*upréstis fruticòsa *Spreng. Mag.*; *S*éseli æthiópicum *Bauh. Pin.* 161.; *S*éseli frùtex *Mor. Umb.* 16.
*Engravings.* Sibth. Fl. Græc., t. 263.; Wats. Dendr. Brit., t. 14.; and our *figs.* 905. and 906.

905. *B.* fruticòsum.

*Spec. Char., &c.* Shrubby, erect-branched. Leaves oblong, attenuated at the base, coriaceous, 1-nerved, quite entire, sessile. Leaves of involucre oblong. Ribs of fruit elevated, acute. Vittæ broad. Bark of branches purplish. Leaves of a sea-green colour. (*Don's Mill.*) A neat sub-evergreen glaucous shrub. Portugal, Spain, the South of France, about Nice, Corsica, Sicily, Mauritania, and Thessaly. Height 3 ft. to 4 ft. in a wild state; 6 ft. in British gardens. Introduced in 1596. Flowers yellow; July and August.



906. *B.* fruticòsum.

It is readily propagated by cuttings, is of free growth in any dry calcareous soil, and is particularly vigorous on the sea coast in Kent. The blue glaucous hue of its smooth shining foliage renders it a desirable addition to every collection. If planted in an open airy situation, in a deep soil, not moist, and allowed to extend itself on every side, it would soon form a large hemispherical bush, highly ornamental during winter from its evergreen foliage, and during summer from its bright yellow flowers.

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B. *frutéscens* L. (Cav. Icon., ii. t. 106.; and our *fig.* . in p. .) has slender elongated branches, and linear-subulate, stiff, striated leaves. It is a native of Mauritania in Spain, and also at Tarragona.

B. *gibraltárica* Lam. Dict., *B.* arboréscens *Jacq.* (Ic. rar., ii. t. 351.; and our *fig.* 2094. in p. 1108.) grows to the height of 3 ft., and has fragrant flowers.

## Order XXXVI. ARALIA'CEÆ.

*Ord. Char. Calyx* entire or toothed. *Petals* 5 or 10; æstivation valvate. *Stamens* same, or double the number of petals. *Anthers* peltate. *Ovarium* of 2 or more cells; cells 1-seeded. *Styles* numerous, usually distinct. *Berry* crowned by the limb of the calyx. *Albumen* fleshy. — Differs from the Umbellàceæ in inflorescence, numerous styles, and baccate, generally many-celled fruit.

*Leaves* simple or compound, alternate, stipulate, deciduous or evergreen; serrated or entire. *Flowers* small, greenish.

The genera belonging to this order, which contain ligneous plants, are Aràlia and *Hédera*, the former rather suffruticose than permanently woody: their characteristics are as under: —

Ara'lia *L.* Petals 5. Stamens 5. Styles 5, expanded. Berry 5-celled.
*He'dera Swartz.* Petals 5—10. Stamens 5—10. Styles 5—10, conniving. Berry 5—10-celled.

### Genus I.

### ARA'LIA *L.* The Aralia, *or Angelica Tree. Lin. Syst.* Pentándria Pentagýnia.

*Identification.* D. Don Prod. Fl. Nep., p. 185., in a note; Dec. Prod., 4. p. 257.; Don's Mill., 3. p. 388.
*Synonymes.* Aràlia sp. *Lin.*; Aràliæ véræ *Blum.*
*Derivation.* According to some, from *ara*, annoyance, the spines being very troublesome in its native country to travellers; but, according to others, a name of unknown meaning, under which one species was sent to Fagon, at Paris, from Quebec, in 1764, by one Sarrazin, a French physician.

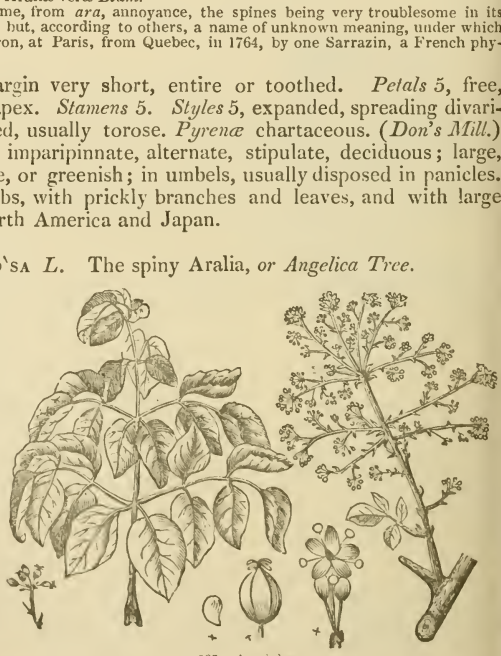
*Gen. Char. Calyx* margin very short, entire or toothed. *Petals* 5, free, and expanded at the apex. *Stamens* 5. *Styles* 5, expanded, spreading divaricately. *Berry* 5-celled, usually torose. *Pyrenæ* chartaceous. (*Don's Mill.*)

*Leaves* compound, imparipinnate, alternate, stipulate, deciduous; large, rough. *Flowers* white, or greenish; in umbels, usually disposed in panicles. — Suffrutescent shrubs, with prickly branches and leaves, and with large pith. Natives of North America and Japan.

♃ 1. A. spino'sa *L.* The spiny Aralia, *or Angelica Tree.*

*Identification.* Lin. Sp., p. 392.; Don's Mill., 3. p. 389.; Lodd. Cat., ed. 1836.
*Synonymes.* Aralie, *Fr.* and *Ger.*; Angelica spinosa, *Ital.*; Spikenard, *N. Amer.*
*Engravings.* Schmidt Arb., t. 102. and t. 103.; Wats. Dend. Brit., t. 116.; and our *fig.* 907.

*Spec. Char., &c.* Stem arboreous and prickly. Leaves doubly and trebly pinnate. Leaflets ovate, acuminated, and deeply serrated. Panicle much branched, beset with velvety stellate down. Umbels nu-



907. A. spinòsa.

merous. Involucre small, of few leaves. Petals white and reflexed. Styles 5, divaricate, arched. Fruit 5-ribbed. (*Don's Mill.*) An erect suffrutescent plant, with the habit of a tree. Carolina and Virginia, in low, fertile, moist woods. Height 10 ft. to 12 ft. Introduced in 1688. Flowers greenish white; August and September.

An infusion of the fruit, in wine or spirit, is considered an effectual cure for the rheumatism. In British gardens, this species is propagated by cuttings of the roots; and, from its large doubly and trebly pinnate leaves, it forms a singularly ornamental plant, with a spreading, umbrella-like head, when standing singly on a lawn. After the plant flowers, the stem commonly dies down to the ground, like that of the raspberry, and, like it, is succeeded by suckers. Pursh "mentions a variety in which the petioles of the leaves are without prickles."

2. A. JAPO'NICA *Thunb.* The Japan Aralia.

*Identification.* Thunb. Jap., p. 128.; Blume Bijdr., p. 371.; Don's Mill., 3. p. 389.
*Engraving.* Our *fig.* 2091. in p. 1107.

*Spec. Char., &c.* Stem shrubby, unarmed. Leaves petiolate, 7-nerved, 7-lobed; lobes ovate, serrated at the apex. Panicles terminal. Peduncles umbelliferous. Leaves coriaceous, glabrous in the adult state, but when young woolly on both surfaces. (*Don's Mill.*) A suffrutescent erect shrub. Japan, near Nagasaki. Height 5 ft. to 6 ft. Introduced in 1838. Flowers white. Fruit striated.

## GENUS II.

*HE'DERA Swartz.* THE IVY. *Lin. Syst.* Pent-Decándria, and Pent-Decagýnia.

*Identification.* Swartz Fl. Ind. Occ., p. 581.; Dec. Prod., 4. p. 261.; Don's Mill., 3. p. 391.
*Synonymes.* Arâlia sect. Gymnópterum *Blum. Bijdr.* p. 871.; *Hédera* and Arâlia sp. *Lin.*; Lierre, *Fr.*; Ephen, *Ger.*; Edera, *Ital.*
*Derivation.* Various etymologies have been proposed for the word *Hédera*; but the most probable supposition appears to be, that it is derived from the Celtic word *hedira*, a cord. The English word Ivy is derived from the Celtic word, *iw*, green.

*Gen. Char. Calyx* margin elevated or toothed. *Petals* 5—10, not cohering at the apex in the form of a calyptra. *Stamens* 5—10. *Styles* 5—10, conniving, or joined in one. *Berry* 5—10-celled. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; lobed. *Flowers* umbellate or capitate. Fruit dark purple, or black.

Evergreen shrubs, climbing by the clasping roots produced by their stems, or creeping on the ground when without support. Natives of Europe and Asia.

1. *H. HE'LIX L.* The *common* Ivy.

*Identification.* Lin. Sp., 292.; Dec. Prod., 4. p. 261.; Don's Mill., 3. p. 391.
*Derivation.* *Hêlix* is derived from *eilcō*, to encompass, or turn round; in reference to the clasping stems, which, however, are not twining.

*Spec. Char., &c.* Stems climbing, throwing out roots from their sides to any object next which they may be placed. Leaves coriaceous, glabrous, shining, with 5 angular lobes; those on the old upright and rectangular branches, which form the tops of the plants, ovate, acute, quite entire. Umbels simple, pubescent. (*Don's Mill.*) A well-known evergreen climber and creeper. Europe and Britain, in woods. Stem 20 ft. to 60 ft. Flowers greenish yellow, or greenish; October and November. Fruit black; ripe in April.

*Varieties.* DeCandolle has enumerated three forms of this species which are independent of the varieties cultivated in British gardens: —

- H. H. 1 *vulgàris* Dec. (Eng. Bot., t. 1267., and our *fig.* 908.) has the pedicels clothed with stellate down, and the fruit black. This is the commonest form of the ivy, throughout Europe, in a wild state; and there are varieties of it with white and yellow variegated leaves, in gardens.

908. *H. H.* vulgàris.

- H. H. 2 *canariénsis* Dec.; *H.* canariénsis *Willd. Berol. Mag.* ii. p. 170. t. 5. f. 1.; the Irish Ivy, or Giant Ivy, of British gardens; has the pedicels scaly with pubescence. Floral leaves subcordate; those of the creeping branches 5-lobed and larger than those of the common ivy. Fruit ? red, or black. Canary Islands. Introduced in ? 1800, or before.
- H. H. ? 3 *chrysocárpa* Dec., *H.* poética *C. Bauh.*, H. chrysocárpos *Dalech.*, *H.* Dionýsias *J. Bauh.*, *H. Hèlix Wall.*, is a native of the North of India, with yellow fruit. It differs from the common ivy in its yellow fruit, and in being of more gigantic growth; in the leaves being more cuneated at the base; and in the pedicels being scaly. Hort. Society's Garden.

*The Varieties in British Gardens*, additional to the above, are:—

- H. H. 4 *fòliis argénteis* Lodd. Cat. *The Silver*-striped *Ivy.*
- H. H. 5 *fòliis aúreis* Lodd. Cat. *The Golden*-striped *Ivy.*
- H. H. 6 *digitàta* Lodd. Cat. *The palmate*, or Hand-shaped, *Ivy.*
- H. H. 7 *arboréscens* Lodd. Cat. *The arborescent*, or Tree, *Ivy.*—This variation is merely an extension of the flowering shoots, which are entire-leaved, and take an arborescent character; and, when a portion of them is cut off, and has rooted as a separate plant, it will sometimes produce an upright bush, which will retain its arborescent form for many years. Sooner or later, however, it resumes its native habit, and throws out rambling, or creeping, shoots, with 5-lobed leaves like the common ivy.

A variety with white berries is mentioned by Theophrastus, Pliny, Virgil, and Dioscorides.

The ivy will grow in any soil or situation, but thrives best when somewhat shaded. The common British variety, and its sub-varieties, are the best kinds for supporting themselves on walls, especially when young; at which period the giant ivy seldom throws out rootlets, though it does so subsequently.

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## Order XXXVII. *HAMAMELIDA'CEÆ.*

*Ord Char.* *Calyx* 4-lobed or repandly toothed. *Petals* 4, linear, rarely wanting; æstivation involutely valvate. *Stamens* 8, short, those opposite the petals barren. *Ovarium* half-inferior. *Styles* 2—3. *Capsule* 2-celled, 2-valved. *Ovules* bifid. *Albumen* horny. The flowers are sometimes diœcious, and sometimes polygamous. (*G. Don.*)

*Leaves* simple, alternate, bistipulate, deciduous; toothed or serrated. *Flowers* yellow or white.—Shrubs, deciduous; natives of North America.

*Hamame'lis* L. Calyx 4-lobed, furnished with 3—4 scales outside. Capsule coriaceous, 2-celled.

Fothergi'lla L. Calyx campanulate, 5—7-toothed. Anthers in the form of a horseshoe. Capsule 2-lobed, 2-celled.

## Genus I.

### *H*AMAME'LIS *L.* The Hamamelis, *or Wych Hazel.*

*Lin. Syst.* Tetrándria Digýnia.

*Identification.* Lin. Gen., 169.; Dec. Prod., 4. p. 268.; Don's Mill., 3. p. 396.
*Synonymes.* Trilòpus *Mith. Act. Acad. Nat. Cur.* 8 *App.*; Hamamelide, *Ital.*
*Derivation.* *H*amamèlis is a name by which Athenæus speaks of a tree which blossomed at the same time as the apple tree; the word being derived from *hama*, together with, and *mēlis*, an apple tree. The modern application seems to be from the *H*amamèlis having its blossoms accompanying its fruits (*mēla*); both being on the tree at the same time.

*Gen. Char.* *Calyx* 4-lobed, adhering to the ovarium at the base, furnished with 2—3 scales on the outside. *Petals* 4, long, alternating with the teeth of the calyx. *Stamens* 4, alternating with the petals. *Ovarium* free at the apex. *Capsules* coriaceous, 2-celled, 2-valved. *Arils* 2 in each capsule. *Seed* oblong, shining. (*Don's Mill.*)

*Leaves* simple, alternate, bistipulate, deciduous; ovate or cuneated, feather-nerved, nearly entire. *Flowers* nearly sessile, disposed in clusters, in the axils of the leaves, girded by a 3-leaved involucrum. *Petals* yellow. — Shrubs or low trees, deciduous; natives of North America; interesting from producing their flowers in the autumn, which remain on during the winter.

♠ ♆ 1. *H.* virgi'nica *L.* The Virginian Hamamelis, *or Wych Hazel.*

*Identification.* Dec. Prod., 4. p. 268.; Don's Mill., 3. p. 396.; Lodd. Cat., ed. 1836.
*Synonymes.* Hamamelie de Virginie, *Fr.*; Virginische Zaubernuss, *Ger.*; Pistacchio nera della Virginia, *Ital.*
*Engravings.* N. Du Ham., 7. t. 60.; Bot. Cab., t. 598.; and our *fig.* 909.

*Spec. Char., &c.* Leaves obovate, acutely toothed, with a small cordate recess at the base. (*Don's Mill.*) A deciduous shrub. Canada to Florida; in dry and stony situations, but frequently near water. Height 20 ft. to 30 ft. with a trunk 6 in. or more in diameter. Introduced in 1736. Flowers yellow; beginning of October to the end of February.

909. *H.* virginica.

*Varieties.*

♠ ♆ H. *v.* 2 *parvifòlia* Nutt. — Leaves smaller, oblong ovate, and a more stunted habit than the species. Pennsylvania, on mountains. In British gardens, when planted in peat soil, this forms a very handsome little shrub; and is peculiarly valuable from being densely covered with fine yellow flowers throughout the winter.

♠ ♆ H. *v.* 3 *macrophýlla.* *H.* macrophýlla *Pursh.* — Leaves nearly orbicular, cordate, coarsely and bluntly toothed, and scabrous from dots beneath. Western part of Georgia, and North Carolina, on the Katawba Mountains. Introduced in 1812, and flowers from May to November.

In British gardens, it has been but little cultivated, notwithstanding the singularity of its appearance in autumn and winter; when it is profusely covered with its fine rich yellow flowers, which begin to expand before the leaves of the previous summer drop off, and continue on the bush throughout the winter. After the petals drop off in spring, the persistent calyxes remain on till the leaves reappear in April or May. It will grow in any light free soil, kept rather moist; and it is propagated by layers and by seeds; which last, though rarely produced in Britain, are frequently sent to this country from America. They ought to be sown immediately on being received, as they are often two years before they come up.

## Genus II.

**FOTHERGI'LLA** L. The Fothergilla. *Lin. Syst.* Icosándria Digýnia.

*Identification.* Lin. fil. Suppl., p. 42.; Dec. Prod., 4. p. 269.; Don's Mill., 3. p. 397.
*Derivation.* In memory of *John Fothergill*, M.D., an eminent physician and patron of botany, who introduced many new plants, and cultivated an excellent collection in his grounds, at Ham House, at Stratford-le-bow, in Essex. He was, besides, one of the most charitable men of his time.

*Gen. Char. Calyx* campanulate, adhering to the ovarium at the base, somewhat truncate, with 5—7 callous subrepand teeth. *Petals* wanting. *Stamens* about 25. *Styles* 2. *Capsule* adnate to the base of the calyx, 2-lobed, 2-celled, 1-seeded. *Seed* bony. (*Don's Mill.*)

*Leaves* simple, alternate, bistipulate, deciduous; feather-nerved, clothed with soft starry down. *Flowers* white, sweet-scented, sessile, anthers yellow; in terminal ovate spikes, having a solitary bractea under each flower; those bracteas at the base of the spike are trifid, and those at its apex are nearly entire.

Shrubs, deciduous, of which there is only one species, but several varieties. Natives of North America.

### 1. F. *alnifo'lia* L. The Alder-leaved Fothergilla.

*Identification.* Lin. fil. Suppl., 257.; Dec. Prod., 4. p. 269.; Don's Mill., 3. p. 397.
*Synonymes.* F. Gárdeni Michx. Fl. Bor. Amer., 1. p. 313.; *Hamamèlis monofca Lin. ex Smith* in *Rees's Cycl.* vol. xvii.

*Spec. Char., &c.* See the generic character. The flowers, which are white and sweet-scented, appear before the leaves; the latter resembling those of the wych hazel. A low deciduous bush. North America, Virginia to Carolina, in shady woods on the sides of hills. Height 3 ft. to 6 ft. Introduced in 1765. Flowers white, sweet-scented; April and May.

*Varieties.* The following are very distinct:—

- *F.* a. 1 *obtùsa* Sims Bot. Mag. t. 1341., Pursh Sept. 1. p. 335.; F. màjor *Bot. Cab.* t. 1520.; F. *a*lnifòlia *Lin. fil. Supp.* 257.; and our *fig.* 910.; has obovate leaves, downy beneath.
- *F.* a. 2 *acùta* Sims, Pursh Sept. 1. p. 335.; F. Gárden*i* Jacq. Icon. rar. t. 100. (Bot. Cab, t. 1507.), has narrow leaves, nearly entire, white from down beneath.
- *F.* a. 3 *màjor* Sims Bot. Mag. t. 1342., Pursh Sept. 1. p. 335. (Bot. Cab., t. 1520.; and our *fig.* 911.) has leaves ovate-oblong, somewhat cordate at the base, very black and serrated at the apex; when young, tomentose beneath.

910. F. *a.* màjor.

911. F. *a.* obtùsa.

In British gardens the fothergillas thrive best in moist sandy peat. They are propagated by seeds, which are sometimes ripened in this country, but are generally received from America. The varieties are increased by layers. The fothergillas are naturally somewhat tender, and though not impatient of cold, yet they are easily injured by the proximity of other trees or bushes, and by excessive drought or perpetual moisture.

## Order XXXVIII. CORNA`CEÆ.

*Ord. Char.* *Calyx* 4-lobed. *Petals* 4; æstivation valvate. *Stamens* 4. *Style* filiform. *Stigma* simple. *Drupe* baccate, enclosing a 2-celled nut. *Seeds* solitary in the cells. *Albumen* fleshy. — Differs from Caprifoliàceæ tribe Sambùceæ, in the polypetalous corolla and drupaceous fruit. (*G. Don.*)

*Leaves* simple, opposite, rarely alternate, exstipulate, deciduous, or sub-evergreen; ovate or oval, entire. *Flowers* white or yellowish. — Shrubs or low trees; natives of Europe and Asia.

*Co'rnus L.* Flowers in cymes. Stamens 4. Style 1. Pome baccate.
Bentha'mia Lindl. Flowers disposed in involucrated heads. Fruit constituted of many pomes grown together.

### Genus I.

### CO'RNUS *L.* The Dogwood. *Lin. Syst.* Tetrándria Monogýnia.

*Identification.* Tourn. Inst., 641. t. 410.; Dec. Prod., 4. p. 271.; Don's Mill., 3. p. 398.
*Synonymes.* Cornouiller, *Fr.*; Hartriegel, *Ger.*; Corniolo, *Ital.*
*Derivation.* From *cornu*, a horn; the wood being thought to be as hard and as durable as horn. Hartriegel signifies hard rail, or hard wood. The name of Dogwood is applied to this genus, because, as Parkinson says, in his *Paradisus*, the fruit of most of the species is not fit even for dogs; but it is more likely to have been given to it from the astringent properties of the bark and leaves, a decoction of which was formerly used as a wash for curing the mange, &c., in dogs.

*Gen. Char.* *Calyx* tube adhering to the ovarium; limb small, 4-toothed. *Petals* 4, oblong, sessile, valvate in æstivation. *Stamens* 4. *Style* 1. *Drupe* baccate, marked by the vestiges of the calyx, containing a 2-celled, rarely 3-celled nucleus. *Seeds* solitary, pendulous. (*Don's Mill.*)

*Leaves* simple, opposite, except in *C.* alternifòlia, exstipulate, deciduous; entire, feather-nerved. *Flowers* sometimes capitate and umbellate, involucrated; sometimes corymbose and panicled, without involucra. *Petals* white, rarely yellow. — Trees under the middle size, and shrubs, deciduous; natives of Europe, Asia, and North America.

Most of the species ripen their fruit in England; but they are usually propagated by suckers, or by layers or cuttings. The wood of all the species makes the very best charcoal. Common soil, and most of the species will thrive in the shade of other trees.

#### § i. *Nudiflòræ* Dec.

*Derivation.* From *nudus*, naked, and *flos*, a flower; the inflorescence being without an involucre.

*Sect. Char.* Flowers corymbose or panicled, without an involucre.

##### A. *Leaves alternate.*

♃ ♀ 1. *C.* alternifo'lia *L.* The alternate-leaved Dogwood.

*Identification.* Lin. fil. Suppl., p. 125.; L'Hérit. Corn., No. 11.; Don's Mill., 3. p. 398.
*Synonyme.* *C.* altérna *Marsh.*
*Engravings.* Guimp. Abb. Holz., t. 43.; Schmidt Baum., 2. t. 70.; and our *fig.* 912.

*Spec. Char., &c.* Leaves alternate, ovate, acute, hoary beneath. Corymbs depressed, spreading. Branches warted. Pomes purple, globose, about the size of a grain of pepper. Leaves on long petioles. Branches green or reddish brown. (*Don'*

912. *C.* alternifòlia.

*Mill.*) A smooth deciduous shrub or low tree. North America, from Canada to Carolina, in shady woods on river banks. Height 15 ft. to 20 ft. Introduced in 1760. Flowers white; May to July. Fruit purple; ripe in October. Decaying leaves reddish yellow. Naked young wood greenish or reddish brown.

This species is easily known from every other, even at a distance, by the horizontal umbelliferous character assumed by the branches, which are also dichotomous, with clusters of leaves at the joints; and the general colour is that of a lively green. The leaves are generally alternate, but not unfrequently opposite.

B. *Leaves opposite.*

2. *C.* SANGUI'NEA *L.* The blood-*red-leaved, or common*, Dogwood.

*Identification.* Lin. Sp., p. 171.; Don's Mill., 3. p. 399.; Lodd. Cat., edit. 1836.
*Synonymes.* *C.* fœ'mina *Raii Syn.* 460.; Vírga sanguínea *Matth. Valgr.* 1. p. 236.; Female Cornel, Dogberry Tree, Hound Tree, Hound's-berry Tree, Prickwood, Gaten or Gatten Tree, Gater or Gatter Tree, Catteridge Tree, wild Cornel; Cornouiller sauvage, sanguin, or femelle, Puíne or Bois punais, *Fr.*; rother Hartriegel, *Ger.*; Sanguinello, *Ital.*
*Derivation.* This species is called fœ'mina, and Female Cornel, because it bears fruit when very young; whereas Córnus más produces male blossoms only till the tree is 15 or 20 years old. Vírga sanguínea is literally the bloody twig, alluding to the colour of the shoots, though they are not nearly so red as those of Córnus álba. The names of Dogberry Tree, Hound Tree, &c., arise from the same source as Dogwood. (See above.) Prickwood alludes to the use of the wood for skewers; Gaten Tree is a corruption of *Gatr treow*, the Saxon name for this species; or, as some suppose, it is derived from *gayta*, the Spanish word for a pipe, the wood of this tree being more hollow, or full of pith, than that of *C.* más. Catteridge, and all the other somewhat similar names, are derived from Gaten. Chaucer calls the fruit Gaitres berries, evidently from the same origin. The French names of Puine, and Bois punais, bug-wood, are from the strong and unpleasant smell of the bark and leaves; and also because a decoction of them forms a wash to destroy bugs. Rother Hartriegel signifies red hard rail, or red hard wood.
*Engravings.* Eng. Bot., t. 249.; Fl. Dan., t. 481.; N. Du Ham., 2. t. 44.; and our *fig.* 913.

*Spec. Char., &c.* Bracteas straight. Leaves ovate, acute, smooth and green on both surfaces. Corymbs flat. Branches of a dark red when full grown. Leaves 2 to 3 in. long. Flowers greenish white, unpleasantly scented. Petals revolute at the sides. Fruit dark purple, and very bitter. (*Don's Mill.*) A large shrub. Europe and the North of Africa, in hedges and thickets, especially on a chalk and limestone soil; plentiful in Britain, in like situations; and also said to grow in North America, near the lakes of Canada and near New York; but it has probably been introduced there. Height 4 ft. to 15 ft. Flowers white; June. Fruit dark purple; ripe in August and September. Decaying leaves deep red. Naked young wood green.

913. *C.* sanguínea.

*Varieties.*

C. *s.* 2 *Púrshii* *Don's Mill.* 3. p. 399.; *C.* sanguínea *Pursh*, *Schmidt Baum.* 2. t. 66.; has the flowers with yellow anthers, and the berries a dark brown. Lakes of Canada, and near New York; and only differs from the *C.* sanguínea of Europe in having the leaves pubescent, and in being of larger stature.

C. *s.* 3 *fóliis variegàtis* Lodd. Cat. has the leaves variegated with white and yellow, and occasional streaks of red. A plant lately received into Messrs. Loddiges's collection, named *C.* candidíssima fol. var., appears, from the leaves, to be identical with this variety. *C.* candidíssima, in the same collection, appears from its leaves to be nothing more than *C.* sanguínea.

One of the commonest shrubs in old shrubberies; and easily known from all the other kinds of *Córnus* by the abundance of its dark purple fruit, and the intensely dark red of its leaves before they drop off in autumn. It is from this last circumstance, we suppose, that the specific name of sanguínea has been given to it, though it is much more obviously applicable to *C.* álba, on account of the redness of its shoots. *C.* purpùrea would be a much better

name as contrasted with *C.* álba, both names applying to the fruit. The wood which is hard, though not nearly so much so as that of Córnus más, was formerly used for mill-cogs, and for various purposes in rustic carpentry; and it still makes excellent skewers for butchers, toothpicks, and similar articles. The bark tastes like apples.

### ✠ 3. *C.* A'LBA *L.* The white-*fruited* Dogwood.

*Identification.* Lin. Mant., p. 40.; Don's Mill., 3. p. 399.
*Synonymes.* *C.* stolonífera *Michx. Fl. Bor. Amer.* i. p. 109.; *C.* tatárica *Mill. Icon.* t. 104.
*Engravings.* Pall. Fl. Ross., i. t. 34.; and our *fig.* 914.

*Spec. Char., &c.* Branches recurved. Branchlets glabrous. Leaves ovate, acute, pubescent, hoary beneath. Corymbs depressed. Branches of a fine red colour. Fruit white, or bluish white. (*Don's Mill.*) A large shrub. Siberia, at the rivers Oby and Irtysch, among bushes, &c.; North America, from Virginia to Canada, on the banks of rivers and lakes; and also in North California. Height 4 ft. to 10 ft. Introduced in 1741. Flowers white; May to July. Fruit white or bluish white; ripe in September. Decaying leaves red or reddish yellow. Naked young wood intensely red or coral colour.

914. *C.* álba.

*Varieties.*

✠ C. *a.* 2 *circinàta* Don's Mill. iii. p. 399., *C.* circinàta *Cham. et Schlecht.* in *Linnæa* iii. p. 139., has the berries of a lead colour. Throughout Canada, and from Lake Huron to lat. 69° N.

✠ C. *a.* 3 *sibírica* Lodd. Cat., ed. 1836, has the shoots of a fine orange red, covered with a delicate bloom. It makes a splendid appearance in the winter season.

Interesting in summer, from its fine large leaves and white flowers; in autumn, from its white fruit, which are about the size and colour of those of the mistletoe; and in the winter and spring, from the fine red of its young shoots.

### ✠ 4. *C.* (A.) STRI'CTA *Lam.* The straight-*branched* Dogwood.

*Identification.* Lam. Dict., 3. p. 116.; Don's Mill., 3. p. 399.
*Synonymes.* *C.* fastigiàta *Michx. Fl. Bor. Amer.* 1. p. 92.; *C.* sanguínea *Walt.*, but not of Lin.; *C.* cyanocárpos *Gmel. Syst. Veg.* 1. p. 257.; *C.* canadénsis *Hort. Par.*; *C.* cærùlea *Meerb. Icon.* 3., but not of Lam.
*Engravings.* Schmidt Baum., 2. t. 67. and our *figs.* 915, 916.

915. *C.* (a.) stricta.

*Spec. Char., &c.* Branches straight, fastigiate. Leaves ovate, acuminated, glabrous, green on both surfaces; when young, hardly pubescent beneath. Corymbs convex, somewhat panicled. Branches reddish brown. Anthers blue. Pomes globose, soft, blue on the outside, but white inside. (*Don's Mill.*) An upright shrub. North America, from Carolina to Canada, frequent on the banks of rivers; also in Mexico, between Tampico and Real del Monte. Height 6 ft. to 10 ft. rarely 20 ft. Introd. 1758. Flowers white; June and July. Fruit blue without and white within; ripe in October. Decaying leaves reddish green. Naked young wood green, or rusty green.

916. *C.* (a.) stricta

*Varieties.*

- C. (*a.*) *s.* 2 *asperifòlia*, *C.* asperifòlia *Lodd. Cat.* ed. 1836, if not identical with the species, differs from it but very slightly.
- C. (*a.*) *s.* 3 *sempervìrens*, *C.* sempervìrens *Lodd. Cat.* ed. 1836, closely resembles the species, but differs from it in retaining its leaves throughout a part of the winter.

5. *C.* (A.) PANICULA'TA *L'Hérit.* The panicled-*flowering* Dogwood.

*Identification.* L'Hérit. Corn., No. 10. t. 5.; Don's Mill., 3. p. 398.
*Synonymes.* *C.* racemòsa *Lam. Dict.* 2. p. 116.; *C.* fœ'mina *Mill. Dict.* No. 4.; *C.* citrifòlia *Hort. Par.*
*Engravings.* Schmidt Baum., 2, t. 68.; and our *fig.* 917.

917. *C.* (a.) paniculàta.

*Spec. Char., &c.* Branches erect. Leaves ovate, acuminated, glabrous, hoary beneath. Corymb thyrsoid. Ovarium silky. Branches pale purplish. Pomes roundish, depressed, watery, white, 3 lines in diameter. The dots on the under side of the leaves, which are only seen through a lens, bear bicuspidate short, adpressed hairs. Tube of calyx pubescent (*Don's Mill.*) A large shrub. Canada to Carolina, in swamps and near rivulets, among other bushes. Height 4 ft. to 6 ft. in America; 20 ft. to 25 ft. in cultivation. Introduced in 1758. Flowers white; July and August. Fruit white; ripe in October. Decaying leaves reddish brown. Naked young wood purplish.

*Varieties.*

- C. *p.* 2 *álbida* Ehrh. Beitr. iv. p. 16. — Leaves elliptic-lanceolate.
- C. *p.* 3 *radiàta* Pursh Fl. Amer. Sept. i. p. 109. — Corymbs sterile, foliiferous.

6. *C.* (A.) SERI'CEA *L'Hérit.* The silky Dogwood.

*Identification.* L'Hérit. Corn., No. 6. t. 2.; Don's Mill., 3. p. 399.
*Synonymes.* *C.* lanuginòsa *Michx. Fl. Bor. Amer.* 1. p. 92.; *C.* álba *Walt. Fl. Car.* 88., but not of Lin.; *C.* cærùlea *Lam. Dict.* 2. p. 116.; *C.* Amòmum *Du Roi Harbk.* 1. p. 165.; *C.* rubiginòsa *Ehrh. Beitr.* 4. p. 15.; *C.* ferrugínea *Hort. Par.*; *C.* candidíssima *Mill.*; *C.* cyanocárpos *Mœnch*, but not of Gmel.
*Engravings.* Schmidt Baum., 2. t. 64.; and our *fig.* 918.

918. *C.* a.) serícea.

*Spec. Char., &c.* Branches spreading. Branchlets woolly. Leaves ovate, acuminated, clothed with rusty pubescence beneath. Corymbs depressed, woolly. Pomes bright blue. Nut compressed. (*Don's Mill.*) A large shrub. Canada to Carolina, in swampy woods and on river banks. Height 5 ft. to 8 ft. Introduced in 1683. Flowers white; June and July. Fruit bright blue; ripe in October. Decaying leaves rusty brown. Naked young wood brown and green.

*Variety.*

- C. (*a.*) *s.* 2 *oblongifòlia* Dec. Prod. iv. p. 272., *C.* oblongifòlia *Rafiin in Litt.*, has leaves oblong and glabrous above.

This sort is very distinct from the two preceding ones, and comes nearer, in general appearance, to *C.* álba than they do; but it is a weaker plant, and smaller in all its parts than that species. The two preceding sorts, *C.* (a.)

stricta and *C.* (a.) paniculàta, have much narrower leaves, and a more compact fastigiate habit of growth, than any other species or variety of the genus. *C.* (a.) paniculàta is the handsomest of the three sorts for a small garden, as it is easily kept of a small size, and in a neat shape, and it flowers profusely.

### ☨ 7. *C.* (A.) CIRCINA'TA *L'Hérit.* The rounded-*leaved* Dogwood.

*Identification.* L'Hérit. Corn., p. 7. No. 8. t. 3.; Don's Mill., 3. p. 399.
*Synonymes.* *C.* tomentòsa *Michx. Fl. Bor. Amer.* 1. p. 91.; *C.* rugòsa *Lam. Dict.* 2. p. 115.; *C.* virginiàna *Hort. Par.*
*Engravings.* Schmidt Baum., 2. t. 69.; and our *fig.* 919.

*Spec. Char., &c.* Branches warted. Leaves broadly oval, acuminated, clothed with hoary tomentum beneath. Corymbs depressed, spreading. Branches slightly tinged with red. Leaves broad, waved on their edges. Flowers white, as in most of the species. Pomes globose, at first blue, but at length becoming white. (*Don's Mill.*) A large shrub. North America, from Canada to Virginia, on the banks of rivers; and probably of California. Height 5 ft. to 10 ft. Introduced in 1784. Flowers white; June and July. Fruit at first blue, and then turning white; ripe in October. Decaying leaves rusty brown. Naked young wood green, tinged with red.

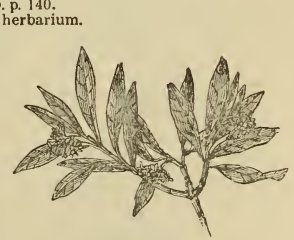
919. *C.* (a.) circinàta.

Readily distinguished from all the other sorts, by its broader leaves, and its rough warted branches.

### ☨ 8. *C.* OBLO'NGA *Wall.* The oblong-*leaved* Dogwood.

*Identification.* Wall. in Roxb. Fl. Ind., 1. p. 432.; Don's Mill., 3. p. 398.
*Synonyme.* *C.* paniculàta *Hamilt. ex D. Don Prod. Fl. Nep.* p. 140.
*Engraving.* Our *fig.* 920. from a specimen in Dr. Lindley's herbarium.

*Spec. Char., &c.* Leaves oblong, acuminated, acute at the base, glaucous, and rather scabrous beneath, with many excavated glands along the axils of the ribs and nerves. Corymbs spreading, panicled. Young shoots clothed with short adpressed hair. Leaves 4 in. to 6 in. long, and 1 in. to 1½ in. broad. Petioles about an inch long. Flowers white or pale purplish, fragrant. Calyx clothed with adpressed silvery hairs, as well as the pedicels and petals. Ovarium 3-celled. Pome ovate-oblong. (*Don's Mill.*) A large shrub. Nepal, about Narainhetty, Katmandu, and the Valley of Dhoon. Height 10 ft. to 15 ft. Introduced in 1818. Flowers white or purplish, fragrant.


920. *C.* oblónga.

## § ii. *Involucràtæ* Dec.

*Derivation.* From *involucrum*, an involucre, with which the heads of flowers are severally surrounded.

*Sect. Char.* Flowers disposed in heads or umbels, surrounded by coloured involucres, which are usually composed of 4 leaves. (*Dec. Prod.*) Trees, with yellow umbelled flowers.

### ☨ 9. *C.* MA'S *L.* The male Dogwood, *the Cornel, or Cornelian Cherry Tree.*

*Identification.* Lin. Sp., 171.; Don's Mill., 3. p. 400.; Lodd. Cat., ed. 1836.
*Synonymes.* *C.* máscula *L'Hérit. Corn.* No. 4.; Long Cherry Tree; Cornelia; Cornouiller mâle, Cornes, Corneilles, *Fr.*; Kornel Kirsche Hartriegel, *Ger.*; Corgnolo, *Ital.*
*Derivation.* The name of más has been applied to this species since the days of Theophrastus; in all probability, because young plants are barren for many years after they show flowers: these

flowers being furnished with stamens only. For an opposite reason, the name of *Córnus fœ'mina* was given to *C. sanguínea*. (See p. 502.) The name of Cornelian Cherry relates to the beautiful colour of the fruit, which resembles that of a cornelian.

*Engravings.* Black., t. 121.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *figs.* 921. and 922.

*Spec. Char., &c.* Branches smoothish. Leaves oval, acuminated, rather pubescent on both surfaces. Flowers protruded before the leaves. Umbels about equal in length to the 4-leaved involucre. Flowers yellow. Fruit elliptic, of a bright shining scarlet colour, the size and form of a small olive or acorn, very styptic in its immature state. (*Don's Mill.*) A large shrub or low tree. Europe, Britain excepted, and in the North of Asia, in hedges and among bushes. Height 12 ft. to 20 ft. Introduced in 1596. Flowers yellow; February to April. Fruit cornelian-coloured; ripe in October and November. Decaying leaves reddish green. Naked young wood brownish green.

921. *C. más.*

*Varieties.*

ϒ C. *m.* 2 *frúctu cèræ colòris* N. Du Ham. ii. p. 162. has the fruit of a wax colour.

ϒ C. *m.* 3 *variegàtus* has the leaves edged with white or yellow.

922. *Córnus más.*

The wood has been, in all ages, celebrated for its hardness and durability, and it is at the same time tough and flexible. In a dry state, it weighs 69 lb. 5 oz. to the cubic foot. The small branches are said to make the most durable spokes for ladders; wooden forks for turning the grain on barn floors, and for making hay; hoops, butchers' skewers, and toothpicks. The wooden forks are made by selecting branches which divide into three near the extremity; and, after cutting the branch to a proper length, which is commonly about 5 or 6 feet, the bark is taken off, and the three branches which are to form the prongs are bent so as to form a triangle, like the wooden corn forks of England. In this state they are put into a hot oven, where they are kept till they are hardened, so as to retain the shape given to them. Similar hay and straw forks are made of the nettle tree in France, and of the willow in various parts of England, by the same procedure. The fruit, when thoroughly ripe, is some-

what sweet, and not disagreeable to eat; and, on the Continent, it is frequently used in confectionery, and for making marmalades. As an ornamental tree, the cornel is valuable, not only on account of its early flowering, and the fine display made by its ripe fruit, but because it is a low tree, never growing out of bounds, and one which, after it has attained the height of 10 or 12 feet, is of slow growth, and of very great duration. For these last reasons, it is particularly suitable for small suburban gardens, in which it will form a fit associate for small trees of *C*ratæ'gus, *Bérberis*, *R*hámnus, *E*uónymus, *H*amamèlis, &c. Seeds; but layers or suckers come much sooner into a flowering state. There are remarkably fine specimens of this tree in the old French gardens in the neighbourhood of Paris, and also in the old gardens of Germany.

### ♃ 10. *C.* FLO'RIDA *L.* The Florida Dogwood.

*Identification.* Lin. Sp., 1661.; Don's Mill., 3. p. 400.
*Synonyme.* Virginian Dogwood.
*Engravings.* Bot. Mag., t. 526.; Schmidt Baum., 2. t. 52.; and our *fig.* 923.

*Spec. Char., &c.* Branches shining. Leaves ovate, acuminated, pale beneath, beset with adpressed hairs on both surfaces. Flowers umbellate, protruded after the leaves. Leaves of involucre large, roundish, retuse, or nearly obcordate. Pomes ovate. Leaves of involucre white. Flowers greenish yellow, and very large. Pomes scarlet, about half the size of those of *C.* más; ripe in August. (*Don's Mill.*) A large shrub or low tree. Carolina to Canada, in woods; and on the banks of the Columbia, near its confluence with the sea. Height 20 ft. to 30 ft. Introduced in 1731. Flowers large, yellowish white; April and May. Fruit scarlet; ripe in August. Decaying leaves yellowish green. Naked young wood brownish green.

923. *C.* flórida.

*C*órnus flórida is universally allowed to be the handsomest species of the genus. It thrives best in a peat soil, which must be kept moist; and the situation should be sheltered, though the foliage of the plants must be fully exposed to the influence of the sun, otherwise they will not flower. Cuttings or layers, both of which readily strike root.

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*Córnus grándis* Schlect. A small tree or shrub. Chico, in ravines. Introduced in 1838 by Hartweg, and probably hardy. "It has a beautiful foliage; the leaves being from 3 in. to 5 in. long, smooth and deep green above, hoary with down on the under side." The flowers are in small heads, and the fruit as large as a sloe, and purplish black, covered with bloom. (*Bot. Reg. Chron.*, 1839.)

C. *officinàlis*, a native of Japan, is figured by Sieboldt (t. 50.), and will probably prove hardy.

## GENUS II.



### BENTHA'MIA Lindl. THE BENTHAMIA. *Lin. Syst.* Tetrándria Monogýnia.

*Identification.* Lindl. in Bot. Reg., t. 1579.
*Synonyme.* Córnus sp. *Wall.*, *Dec.*, and *G. Don.*
*Derivation.* Named in honour of *George Bentham*, Esq., F.L.S., Secretary to the Horticultural Society; and nephew of the celebrated moralist and jurist, Jeremy Bentham.

*Gen. Char.* *Flowers* disposed in heads, each head attended by an involucre which consists of 4 petal-like parts, and resembles a corolla. *Calyx* with a minute 4-toothed limb. *Petals* 4, fleshy, wedge-shaped. *Stamens* 4. *Style* 1. *Fruit* constituted of many pomes grown together; endocarp in each pome with 2 cells. *Seeds* solitary and pendulous in each cell. (*Lindl.*)

*Leaves* simple, opposite, exstipulate, sub-evergreen: entire. *Flowers* large, white. — A large shrub or low tree. Himalayas. Culture as in *C*órnus.

☿ 1. B. FRAGI'FERA *Lindl.* The Strawberry-bearing Benthamia.

*Identification.* Hort. Trans., 2d series, 1. p. 458.; Lindl. in Bot. Reg., t. 1579.
*Synonymes.* *C.* capitàta *Wall.* in Roxb. Fl. Ind. 1. p. 434., Don's Mill. 3. p. 399.; Chung-wa, *in Nepal*; Bhumowro, *in Serampore.*
*Engravings.* Bot. Reg., t. 1579.; Hort. Trans., 2d series, 1. t. 17.; and our *fig.* 924.

*Spec. Char., &c.* Branches spreading, smooth. Leaves lanceolate, acuminated at both ends, on short petioles, rather rough with small adpressed down. Flowers sessile, densely aggregate, forming a round head girded by a 4-leaved scabrous involucrum. (*Don's Mill.*) A large sub-evergreen shrub or low tree. Nepal, in Gossainthan. Height 10 ft. to 15. ft. Introduced in 1825. Flowers large, yellowish white; June. Fruit large, about the size of that of the common arbutus, reddish; ripe in October; yellowish white within, not unpleasant to eat Young shoots whitish green.

924. B. fragífera.

Rather tender in the climate of London, though it forms a fine evergreen in some parts of Cornwall: perhaps it might be rendered hardier by grafting it on *C*órnus sanguínea. Readily propagated either from seeds or cuttings, and of easy culture in loamy soil, kept moist.

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*Benthàm*ia *japónica* is figured by Sieboldt (t. 16.), and is probably hardy.

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## ORDER XXXIX. LORANTHA'CEÆ.

*ORD. CHAR.* *Calyx* calyculate, entire or lobed. *Petals* 4—8, distinct or cohering; æstivation valvate. *Stamens* 4—8, opposite the petals, or more or less adnate to them. *Style* absent or present. *Stigma* capitate. *Berry* 1-celled, 1-seeded, crowned by the calyx. *Albumen* fleshy. *Flowers* generally unisexual. The habit, and the stamens being opposite the petals, distinguish this from *C*aprifoliàceæ and *C*ornàceæ. (*G. Don.*)

*Leaves* simple, opposite, exstipulate, evergreen; entire. *Flowers* small, whitish, or purplish. — Shrubs, parasitical or terrestrial. Europe and Japan.

The hardy ligneous plants are included in the genera *V*íscum, Loránthus, and *Aúcuba.*

*V*I'SCUM *L.* Flowers diœcious or monœcious. Margin of the calyx obsolete. Petals usually 4, connected at the base in the male flowers, but free in the female. Berry globular, viscid, of 1 cell.

LORA'NTHUS *L.* Flowers diœcious or hermaphrodite. Margin of calyx entire. Petals 5—6, linear, reflexed.

*AU'CUBA* Thunb. Flowers diœcious. Calyx 5-toothed. Petals 4, ovate lanceolate. Fruit fleshy, 1-seeded.

### GENUS I.

*V*I'SCUM *L.* THE MISTLETOE. *Lin. Syst.* Monœ'cia, or Diœ'cia, Tetrándria.

*Identification.* Tourn. Inst., p. 609.; Dec. Prod., 4. p. 277.; Don's Mill., 3. p. 402.

*Synonymes.* Misseldine, Gui, or Guy, *Fr.*; Mistl, or Missel, *Ger.*; Visco, or Vischio, *Ital.*; Legamodoga, *Span.*

*Derivation.* *Viscus*, or *viscum*, is the Latin for birdlime, which is made from the berries; and Mistletoe is by some supposed to be derived from *mist*, the German word for dung, or slimy dirt, and by others from *mistelta*, the Saxon name for the plant.

*Gen. Char.* *Calyx* a slight border in the male flowers, more evident in the female. *Corolla* in the male flowers gamopetalous, in 4 deep, ovate, acute, equal divisions; in the female flower of 4 ovate, equal, deciduous petals. *Anthers* in the female flowers none; in the male flower 4, compressed. *Ovarium* ovate. *Stigma* sessile. *Berry* globular. (*Don's Mill.*)

*Leaves* simple, opposite, rarely alternate, exstipulate, evergreen; undivided, entire, rigid. *Flowers* in fascicles or spikes, greenish. *Berries* white. —An evergreen shrub, parasitical on trees. Europe; in Britain, England.

### ℰ 1. *V.* A'LBUM *L.* The white-*fruited*, *or common*, Mistletoe.

*Identification.* Lin. Sp., 1451.; Dec. Prod., 4. p. 277.; Don's Mill., 3. p. 403.

*Engravings.* N. Du Ham., l. t. 115.; Eng. Bot., t. 1470.; Baxt. Brit. Pl., t. 40.; and our *fig.* 925., which exhibits a portion of a male plant, marked *m*, and of a female plant in fruit, marked *f*.

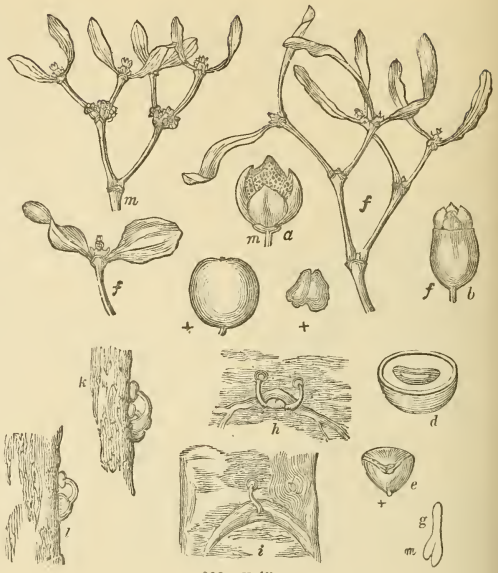
*Spec. Char., &c.* Stem much branched, forked; with sessile intermediate heads, of about 5 flowers. Branches terete. Leaves obovate-lanceolate, obtuse, nerveless. (*Don's Mill*) A parasitical shrub, forming a confused tuft of branches with a yellowish green aspect. Europe and England, on trunks and branches of trees, most frequent on *Rosàceæ*. Height 2 ft. to 3 ft. Flowers greenish yellow; May. Berry white; ripe in December.

925. *V.* álbum.

The leaves vary considerably in different plants, as may be seen in *fig.* 926., which contains engravings of three different specimens. The durability of the plant is very great; for, when once established on a tree, it is seldom known to cease growing while the tree is in life; but, when it dies, or the branch on which it is rooted decays, or becomes diseased, the death of the mistletoe immediately follows. The trees on which the mistletoe grows belong to various natural orders; and, indeed, it would be difficult to say on what dicotyledonous trees it will not grow. In England, it is found on *Tiliàceæ*, *Aceràceæ*, *Rosàceæ*, *Cupulíferæ*, *Salicàceæ*, *Oleàceæ*, and, we believe, also on *Coníferæ*. It is found on the oak at Eastnor Castle (see *Gard. Mag.*, vol. xiii. p. 206.); and in the neighbourhood of Magdeburg we saw it growing in immense quantities on *Pinus sylvéstris* in 1814. In France, it grows on trees of all the natural orders mentioned, but least frequently on the oak. It does not grow on the olive in France, though it abounds on the almond. In Spain, it grows on the olive; as it does in the neighbourhood of Jerusalem; and, in the latter locality, is found the variety with red fruit, which is perhaps a Loránthus.

The mistletoe is propagated by the berries being, by some means or other, made to adhere to the bark of a living tree. The common agency by which this is effected is supposed to be that of birds; and more especially of the missel thrush, which, after having satisfied itself by eating the berries, wipes off such of them as may adhere to the outer part of its beak, by rubbing it against the branch of the tree on which it has alighted; and some of the seeds are thus left sticking to the bark. If the bark should be smooth, and not much indurated, the seeds will germinate, and root into it the following spring; that is, supposing them to have been properly fecundated by the proximity of a male plant to the female one which produced them. The first indication of germination is the appearance of one or more radicles, like the sucker of a house fly, but larger; as at *h i*, in *fig.* 926., which are front views, and at *k l* in the same figure, which are side views, taken from mistletoe berries, which were stuck on the upright trunk of a cherry tree in our garden at Bayswater, in March, 1836, and germinated there, as they appeared on the 20th of May of the same year. When the white, viscous, pulpy matter of the mistletoe berry is removed, the kernel, or seed, appears of a greenish colour, and

flat; sometimes oval, at other times triangular, and at other times of various forms. In *fig.* 926., *a* is the male blossom magnified; *b*, the female blossom magnified; *d*, a berry cut through, transversely; *e*, a seed divided vertically, showing the two embryos; *g*, the embryo magnified; *h*, the two embryos, with the two radicles germinating; *i*, a single radicle; *k*, a side view, or section, of the two radicles; and *l*, a side view, or section, of the single radicle. Our mistletoes, at Bayswater, are now (Aug. 1840) from 4 in. to 8 in. in length, with 4 or 5 pairs of leaves, after having been four years sown. Mr. Moss, a nurseryman at Malvern, has succeeded in grafting the mistletoe standard high on young apple and pear trees, and also on poplars and willows. The grafts should be made in the first or second week in May; and they should never be lower than 5 ft. from the ground, or higher than 10 ft. Where the stock is not more than ½ in. in diameter, an incision is made in the bark, into which a scion of mistletoe, pared thin, is inserted, having a bud and a leaf at the upper end. In grafting longer pieces, a notch should be cut out of the stock; an incision made below the notch; and a shoulder left on the scion to rest on the notch, in the manner of crown grafting. In every case, there must be a joint on the lower extremity of the scion. The mistletoe may also be propagated by budding, taking care to have a heel of wood and a joint at the lower extremity of the bud. (See *Gard. Mag.*, vol. xiii. pp. 206. and 285.)



926. *V. álbum.*

## Genus II.

LORA'NTHUS *L.* The Loranthus. *Lin. Syst.* Pentahexándria Monogýnia.

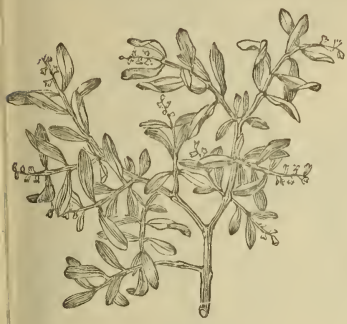
*Identification.* Lin. Sp., 1672.; Dec. Prod., 4. p. 671.; Don's Mill., 3. p. 409.
*Derivation.* From *loron*, a lash made of leather, and *anthos*, a flower; alluding to the long linear shape and leathery substance of the petals.

*Gen. Char.* *Flowers* diœcious or hermaphrodite. *Calyx* cup-shaped, adnate, with an entire border. *Petals* 5—6, linear, reflexed. *Stamens* inserted into the middle of the petals. *Filaments* short. *Anthers* globose. *Style* thickish. *Stigma* simple. *Berry* globose, 1-celled, 1-seeded. (*Don's Mill.*)

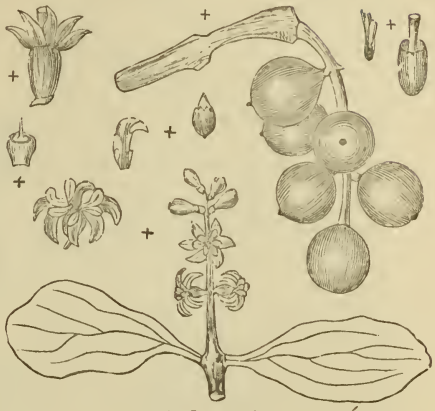
*Leaves* simple, opposite or nearly so, exstipulate, evergreen; entire, rigid. *Flowers* in spikes, axillary and terminal. — An evergreen shrub, parasitical on trees; native of Austria.

### 1. L. EUROPÆ'US *L.* The European Loranthus.

*Identification.* Lin. Sp., 1672.; Jacq. Fl. Austr., t. 30.; Don's Mill., 3. p. 409.
*Engravings.* Jacq. l. c.; our *fig.* 927., and our *fig.* 928. of the natural size



927. L. europæ'us.



928. L. europæ'us.

*Spec. Char., &c.* Plant glabrous, much branched. Branches terete. Leaves opposite, petiolate, oval-oblong. Racemes terminal, simple. Flowers diœcious, of 6 petals. (*Don's Mill.*) An evergreen parasitical shrub, with the habit of *Víscum álbum*. Austria, Hungary, Italy, and Upper Siberia, on oak and sweet chestnut trees. Height 2 ft. to 3 ft. Introduced in 1839. Flowers greenish; May. Berries oval, white or yellowish; ripe in December.

Berries of this plant were received from M. Charles Rauch of Vienna, by his brother, M. Francis Rauch, and sown on trees in the Horticultural Society's Garden, and also in our garden, at Bayswater, in January, 1839, though they have not yet vegetated

## GENUS III.

### *AU'CUBA* Thunb. THE AUCUBA. *Lin. Syst.* Diœ'cia Tetrándria.

*Identification.* Thunb. Fl. Jap., p. 4.; Dec. Prod., 4. p. 274.; Don's Mill., 3. p. 433.
*Synonymes.* *Aúcuba* Kæmpf. Amœn. 5. p. 775.; Eùbasis *Salisb. Prod.* p. 68.
*Derivation.* *Aucuba* is the Japanese name.

*Gen. Char.* *Flowers* diœcious. *Calyx* closely adhering, with the margin a little elevated, and 4-toothed; teeth obtuse, very short. *Petals* 4, deciduous, alternating with the calycine teeth, inserted in the margin of the elevated fleshy 4-angled disk. *Stamens* 4. *Ovarium* cylindrical. *Style* very short, thick, terete. *Berry* fleshy, 1-seeded. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, evergreen; petiolate, coriaceous. *Flowers* small, panicled.

An evergreen shrub or low tree; Japan; with dichotomous or verticillate branches, in the manner of those of Loránthus and *Víscum*. The male blossom is unknown. Only the female state of this plant is in British gardens.

#### 1. *A.* JAPO'NICA Thunb. The Japan Aucuba.

*Identification.* Thunb. Fl. Jap., p. 64.; Dec. Prod., 4. p. 274.; Don's Mill., 3. p. 433.
*Synonymes.* Eùbasis dichótomus *Salisb. Prod.* p. 68.; spotted-leaved Laurel, Japan Laurel.
*Engravings.* Thunb. Icon. Fl. Jap., t. 12. and 13.; Bot. Mag., t. 1197.; and our *fig.* 929.

*Spec. Char., &c.* Leaves ovate-lanceolate, acuminated, toothed, coriaceous, glabrous, shining, pale green; beautifully spotted with yellow, having the midrib rather prominent, the rest of the leaf reticulately veined. Petioles articulated with the branches, and dilated at the base. (*Don's Mill.*) An evergreen shrub. Japan. Height 6 ft. to 10 ft., and probably much higher in warm sheltered situations. Introduced in 1783. Flowers dark blood-coloured; May and July. Berries red; ripe in March; not yet seen in England.

929. *A. japónica.*

As hardy as, or hardier than, the common laurel; and, what is a very valuable property in England, it will endure coal smoke better than almost any other evergreen. It is readily propagated by cuttings; and grows freely in any soil tolerably dry, advancing steadily by shoots of from 6 in. to 9 in. long every season.

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## Order XL. CAPRIFOLIA'CEÆ.

*Ord. Char.* *Calyx* 5-lobed. *Corolla* monopetalous; tube short; limb 5-lobed; æstivation valvate. *Stamens* 5, adnate to the corolla, and alternating with its lobes. *Ovarium* 3-celled. *Style* exserted. *Stigmas* 3, distinct, or combined. *Berry* pulpy, rarely dry, crowned by the calyx, 1 or many celled. *Seeds* solitary, twin or numerous in the cells. *Albumen* fleshy. (*G. Don.*)

*Leaves* simple, or compound, generally exstipulate, deciduous, or evergreen. *Flowers* terminal, corymbose, or axillary. — Shrubs or low trees, natives of Europe, North America, and Asia, which may be arranged in two sections as under: —

### Sect. I. Sambu'ceæ *Humb. et Kth.*

*Sect. Char.* Corolla monopetalous, regular, rotate, with 5 segments only connected a little at the base; rarely tubular. Style wanting. Stigmas 3, sessile.

Sambu'cus *Tourn.* Corolla rotate, urceolate. Berry roundish, pulpy, 1-celled, 3—4-seeded, hardly crowned.

Vibu'rnum *L.* Corolla rotate, subcampanulate, and tubular. Berry 1-seeded, crowned by the calycine teeth. Low deciduous trees or shrubs; partly evergreen.

### Sect. II. Lonice'reæ Brown.

*Sect. Char.* Corolla monopetalous, more or less tubular, usually irregular. Style filiform, crowned by three distinct or concrete stigmas.

Diervi'lla Tourn. Calyx bibracteate at the base, 5-parted. Corolla 3-cleft. Capsule 1-celled, many-seeded. A low deciduous shrub.

Loni'cera Desf. Tube of calyx 5-toothed. Corolla 5-parted, usually irregular. Berry 3-celled. Cells few-seeded. Deciduous and evergreen shrubs, many of them twiners.

Symphorica'rpos *G. Don.* (Symphòria *Pers.*) Calyx 4—5-toothed. Corolla almost regular. Berry crowned by the calyx, 4-celled, two of them empty, and the other two containing 1 seed each. Deciduous shrubs.

LEYCESTE'RIA Wall. Calyx 5-parted, irregular. Corolla 5-parted. Berry 5-celled, crowned by the calyx. Cells many-seeded. A rambling sub-evergreen shrub.

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## Sect. I. SAMBU'CEÆ.

### GENUS I.

SAMBU'CUS *Tourn.* THE ELDER. *Lin. Syst.* Pentándria Trigýnia.

*Identification.* Tourn. Inst., 376.; Dec. Prod., 4. p. 321.; Don's Mill., 3. p. 436.
*Synonyme.* Phyteùma *Lour. Coch.* p. 138., but not of Lin.
*Derivation.* From *sambukē*, which the Latins have changed to *sambuca*, a musical instrument which is believed to have been made of elder wood.

*Gen. Char., &c.* *Calyx* small, but divided into 5 deep segments, permanent. *Corolla* rotate, urceolar, 5-lobed; lobes obtuse. *Stamens* 5, about the length of the corolla. *Filaments* awl-shaped. *Anthers* roundish, and heart-shaped. *Style* none. *Stigmas* 3, obtuse. *Berry* globular, pulpy, of 1 cell, containing 3—5 seeds, which are convex on the outside, and angular inside. (*Don's Mill.*)

*Leaves* compound, opposite, bistipulate, deciduous; stalked: leaflets toothed, pinnate, or jagged, often biglandular at the base. *Flowers* white or purplish, in terminal cymes, which are in some flat, and in others thyrsoid. *Berries* purplish, cathartic.—Those plants of the genus which have pinnate or jagged leaflets, are not true species, but only varieties; all the true species having only toothed leaflets.

Trees, low, deciduous, natives of Europe and North America; ornamental for their compound leaves, and large terminal cymes of flowers; which are succeeded by purplish, red, white, or green berries, from which a wine is made. All the species are of easy culture, in good soil, rather moist and loamy; and they are all readily propagated by cuttings.

A. *Leaves pinnate. Flowers cymose or corymbose.*

♃ 1. *S.* NI'GRA *L.* The *common, or* black-*fruited*, Elder.

*Identification.* Lin. Sp., 385.; Don's Mill., 3. p. 437.

930. Sambùcus nigra.

*Synonymes.* Bourtry, or Bour Tree, Arntree, *Scotch*; Sureau, *Fr.*; Hollander, *Ger.*; Sambuco *Ital.*; Sauco, and Sabuco *Span.*; Flaeder, *Swed.*; Hylde, *Dan.*

*Engravings.* N. Du Ham., 1. t. 55.; Eng. Bot., t. 476.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *figs.* 930. and 931.

*Spec. Char., &c.* Arboreous. Leaves pinnate. Leaflets usually 5, smooth, deep green, ovate or oblong-oval, acuminated; the lower leaves sometimes trifoliolate. Cymes with 5 main branches. Branches, after a year's growth, clothed with smooth grey bark, and filled with a light spongy pith. Flowers cream-coloured, with a sweet but faint smell. Berries globular, purplish black. Stalks reddish. (*Don's Mill.*) A low tree. Europe, and part of Asia, in hedges, coppices, and woods; and plentiful in Britain, in like situations. Height 20 ft. to 30 ft. Flowers cream-coloured; June. Berries purplish black; ripe in September. Decaying leaves yellowish green. Naked young wood whitish green.

931. *S. nigra.*

*Varieties.*

- ♆ S. *n.* 2 *viréscens* Dec. Prod. iv. p. 322.; *S.* viréscens *Desf. Arbr. Fr.* i. p. 348. — Fruit yellowish green.
- ♆ S. *n.* 3 *leucocárpa.* — Fruit white.
- ♆ S. *n.* 4 *laciniàta*; *S.* laciniàta *Mill. Dict.* No. 2. (Lob. Icon., 2. t. 164. f. 2.; and our *fig.* 932); the Parsley-leaved Elder; has the leaflets cut into fine segments. The handsomest of all the varieties.

932. *S. n.* laciniàta.

933. *S. n.* fòliis argénteis.

- ♆ S. *n.* 5 *rotundifòlia.* — Leaves trifoliolate. Leaflets petiolate, roundish, serrated. Corymbs few-flowered. Cultivated in the Chelsea Garden.
- ♆ S. *n.* 6 *monstròsa*, *S.* monstròsa *Hort.*, has the branches striped. Flowers of from 5—15 parts; and with from 5—15 stamens. Stigmas 5—12. Berries irregular.
- ♆ S. *n.* 7 *fòliis argénteis* (*fig.* 933.) has the leaves variegated with white, and forms a striking and lively-looking plant in a shrubbery.
- ♆ S. *n.* 8 *fòliis lùteis* has the leaves slightly variegated with yellow.

The elder is cultivated in some parts of Kent for its fruit, which is much in demand for making elder wine. The flowers and bark are much used by herbalists; and the wood of old trunks, being very hard, is used as a substitute for that of box and dogwood. The young shoots, having large pith, are made into pop-guns, and the pith is used by electricians in various experiments. The plant, both in Britain and on the Continent, is sometimes used for forming hedges, and also as a nurse plant for plantations exposed to the sea breeze. In the latter capacity, it has the great advantage of growing rapidly the first five or six years, and afterwards of being easily choked by the trees it has nursed up. The elder will not thrive except in a good soil, kept somewhat moist; and it will not flower and fruit abundantly, unless the situation be

open, and fully exposed to the light and air. The plant roots so readily from cuttings and truncheons, that, where the soil is tolerably moist, a plantation or a hedge may be made at once, by the use of the latter, instead of employing rooted plants.

### ♃ 2. *S.* CANADE´NSIS *L.* The Canadian Elder.

*Identification.* Lin. Sp., 385.; Don's Mill., 3. p. 436.
*Engravings.* Schmidt Baum., 2. t. 142.; and our *fig.* 934.

*Spec. Char., &c.* Frutescent. Leaves pinnate or sub-pinnate. Leaflets about 4 pairs, and an odd one; oblong, oval, stiffish, acuminated, more or less pubescent beneath, sometimes appendiculated at the base. Cymes of 5 main branches. Flowers almost scentless. Berries deep bluish black. (*Don's Mill.*) A shrub, nearly suffruticose. Canada to Carolina, in swamps and near hedges. Height 4 ft. to 6 ft. Introduced in 1761. Flowers white; July and August. Fruit bluish black; ripe in September.

934. S. canadénsis.

A bush, in foliage resembling the common elder, but it is less hardy, and, in Britain at least, never assumes any thing of a tree character.

B. *Leaves pinnate. Flowers panicled.*

### ♃ 3. *S.* RACEMO`SA *L.* The racemose-*flowered* Elder.

*Identification.* Lin. Sp., 386.; Don's Mill., 3. p. 438.
*Synonymes.* *S.* montàna *Cam. Epit.* 976.; *S* cervìni *Tabern.* 1029.; Sambuco montana, *Ital.*
*Engravings.* Jacq. Icon. Rar., 1. p. 59.; N. Du Ham., 1. t. 56.; and our *fig.* 935.

*Spec. Char., &c.* Shrubby. Leaves pinnate. Leaflets 5, membranous, oblong, acuminated, serrated, unequal at the base. Petioles glabrous. Panicle ovate. Leaves pale green, pretty smooth. (*Don's Mill.*) A low tree or large shrub. Middle and South of Europe and Siberia, on mountains. Height 10 ft. to 12 ft. Introduced in 1596. Flowers whitish green; April and May. Fruit scarlet; ripe in August.

*Variety.*

♃ S. *r.* 2 *laciniàta* Koch in Dec. Fl. Fr. Supp. p. 3000.—Leaflets jagged. A native of the Palatinate of the Rhine.

935. S. racemòsa.

This tree has a splendid appearance when covered with its panicles of fine, large, scarlet fruit, which resemble miniature bunches of grapes of the most brilliant scarlet. Its large leaves, with their deeply serrated pinnæ, are also very ornamental. It grows as freely as the common elder, and deserves a place in every collection; though it is very seldom found, in British gardens, of such a size as to display its beauty. We should think it would succeed if budded on the common elder; and, as that species is abundant in many places,

plants might be trained to a single stem, and budded with *S.* racemòsa standard high. It is very ornamental in the Paris gardens.

4. *S.* (R.) PU'BENS *Michx.* The downy Elder.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 181.; Don's Mill., 3. p. 438.
*Synonymes.* *S.* racemòsa *Hook. Fl. Bor. Amer.* 1. p. 279., but not of Lin.; *S.* pubèscens *Lodd. Cat.*
*Engravings.* Our *fig.* 936. from a living plant in the Chelsea Botanic Garden.

936. *S.* (R.) pùbens.

*Spec. Char., &c.* Shrubby. Leaves pinnate. Leaflets 5, membranous, ovate-lanceolate, or oblong, acuminated, serrated, pubescent, but chiefly on the under side. Panicle thyrsoid. (*Don's Mill.*) A large shrub or low tree. Carolina to Canada, on the highest mountains. Height 6 ft. to 10 ft. sometimes 12 ft. Introd. 1812. Flowers whitish; April and May Berries red; ripe in August.

Closely resembling *S.* racemòsa, of which it is probably only a variety. Sir W. J. Hooker mentions a variety with 7 leaflets, which may be designated S. (*r.*) *p.* 2 *heptaphýlla.*

## GENUS II.

*VIBU'RNUM L.* THE VIBURNUM. *Lin. Syst.* Pentándria Trigýnia.

*Identification.* Lin. Gen., p. 370.; Dec. Prod., 4. p. 323.; Don's Mill., 3. p. 438.
*Synonymes.* *O'*pulus, *V*ibúrnum, and *T*ìnus, *Tourn. Inst.* p. 607. t. 376. and 377.; *V*ibúrnum and *O*pulus, *Mœnch Meth.* p. 505.; Viorne, *Fr.*; Schneeball, *Ger.*; Viburno, *Ital.*
*Derivation.* According to Vaillant, the word *V*ibúrnum is derived from the Latin word *vico*, to tie; on account of the pliability of the branches of some species. Viburna, in the plural, appears to have been applied by the ancients to any shrubs that were used for binding or tying.

*Gen. Char.* *Calyx* limb small, permanent. *Corolla* rotate, somewhat campanulate, or tubular, with a 5-lobed limb. *Stamens* 5, equal. *Stigmas* 3, sessile. *Berry* ovate or globose, 1-seeded from abortion, crowned by the calycine teeth. (*Don's Mill.*)

*Leaves* simple, opposite, stipulate, chiefly deciduous, but partly evergreen; petiolate. *Flowers* in terminal corymbs; usually white, but sometimes verging to a rose colour. Decaying leaves red and yellow.—Shrubs; natives of Europe, Asia, and North America; of easy culture and propagation, by seeds or layers, in any common soil.

### § i. *Tìnus* Tourn.

*Synonymes.* Lentago *Dec. Prod.* 4. p. 324.; *V*ibúrnum *Mœnch Meth.* p. 505.

*Sect. Char., &c.* Leaves quite entire, or toothed. Style almost wanting; stigmas 3, sessile.

1. *V. TI'NUS L.* The Laurustinus.

*Identification.* Lin. Sp., 383.; Dec. Prod., 4. p. 324.; Don's Mill., 3. p. 438.
*Synonymes.* *V. l*auriiórme *Lam. Fl. Fr.* 3. p. 363.; *T*ìnus *Tourn. Inst.* p. 607. t. 377.; *T*ìnus *lauri*fòlia *Borkh.* in *Rœm. Arch.* 1. pt. 2. p. 20.; the Laurustine, wild Bale Tree, *Gerard*; Viorne, Laurier Tin, *Fr.*; Lorbeerartiger Schneeball, or Schwalkenstrauch, *Ger.*; Lagro salvatico, and Lauro Tino, *Ital.*
*Derivation.* Laurustinus is from *laurus*, a laurel, and *tinus*, the Latin name of the plant; the word *laurus* being added, by old authors, from the supposition that this shrub belonged to the same family as the *L*aúrus nóbilis, or sweet bay. Lorbeerartiger is laurel-like.
*Engravings.* N. Du Ham., 2. t. 37.; Bot. Mag., t. 38.; and our *fig.* 937.

*Spec. Char., &c.* Leaves ovate-oblong, quite entire, permanent; having the

ramifications of the veins beneath, as well as the branchlets, furnished with glandular hairs. Corymbs flat. Flowers white, but rose-coloured before expansion, and sometimes afterwards for a little time. Berries dark blue. (*Don's Mill.*) A compact evergreen shrub. South of Europe, and North of Africa. Height 8 ft. to 10 ft. Introduced in 1596. Flowers white; December till March. Berries dark blue; ripe in June.

937. *Vibúrnum Tinus.*

*Varieties.*

- V. T. 2 *hírta* Ait. Hort. Kew. ii. p. 166.; *V. Tìnus Mill. Dict.* No. 4.; *V.* lùcidum *Mill., Pers.*, and *Schultes.* — Leaves oval-oblong, hairy beneath and on the margins. The flowers of this variety appear in autumn, and continue on the shrub all the winter. A native of Portugal and Spain, and the vicinity of Nice. Very distinct, from the comparative roundness of its leaves, and the hairiness both of the leaves and branches.
- V. T. 3 *lùcida* Ait. l. c. — Leaves ovate-oblong, glabrous on both surfaces, shining. The cymes, as well as the flowers and leaves, are larger than those of the common sort, and seldom appear till the spring. When the winters are sharp, the flowers are killed, and never open unless they are sheltered. This is quite a distinct variety, with fewer and more spreading branches than the common kind, and much larger leaves, which are shining. There is a subvariety of it with leaves more or less variegated with white. It is a native about Algiers, and on Mount Atlas.
- V. T. 4 *virgàta* Ait. l. c., Clus. Hist. No. iii. with a fig. — Leaves oblong-lanceolate, pilose on the margins, as well as on the under surface. It is a native of Italy, about Rome and Tivoli, &c.
- V. T. 5 *strícta* Hort. has a somewhat erect and fastigiate habit. Horticultural Society's Garden. There is also a variegated subvariety.

One of the most ornamental of evergreen shrubs, the foliage tufting in beautiful masses, and covered with a profusion of white flowers which commence expanding in November, and continue flowering till April or May. In British nurseries, it is frequently, for expedition's sake, increased by layers; but all the varieties are readily propagated by cuttings, taken off in autumn, and planted in a sandy soil, on a northern border. In two years, these cuttings will form saleable plants of the smallest size. The variety *V. T.* lùcida, being somewhat more difficult to strike than the others, is generally increased by layers, which are made in autumn, and root in a year.

## § ii. *Vibúrnum* Tourn.

*Synonyme.* Lentàgo *Dec. Prod.* 4. p. 424.

*Sect. Char., &c.* Leaves deciduous. All the flowers fertile, and equal in shape and size, except in *V.* lantanòides. Corolla rotate. Fruit oval.

### ♃ ☿ 2. *V.* Lenta'go *L.* The Lentago, *or pliant-branched,* Viburnum.

*Identification.* Lin. Sp., p. 384.; Dec. Prod., 4. p. 325.; Don's Mill., 3. p. 440.
*Synonymes.* Tree Viburnum, Canada Viburnum; Viorne à Rameaux pendans, Viorne luisante, *Fr.*; Birn-blätteriger Schneeball, *Ger.*; Canadische Schwalkenbeerstrauch, Schwalkenstrauch, *Hayne.*
*Engravings.* Wats. Dend. Brit., t. 21.; Schmidt Baum., 3. t. 176.; and our *fig.* 938.

*Spec. Char., &c.* Leaves broad-ovate, acuminated, sharply serrated, glabrous. Petioles with narrow curled margins. Corymbs terminal, sessile. Serratures

of leaves hooked a little, and somewhat cartilaginous. (*Don's Mill.*) A robust shrub or low tree. New England to Carolina, among hedges and on the borders of woods; and found throughout Canada. Height 6 ft. to 10 ft. Introduced in 1761. Flowers white; July. Fruit black; ripe in September. Decaying leaves purple red and yellow Naked young wood yellowish and reddish green.

938 *V.* Lentàgo.

In British gardens, this species forms, when pruned to a single stem, a handsome small tree, flowering freely and producing abundance of fruit, which is greedily eaten by birds. Propagated by layers, or by seeds.

♃ ♆ 3. *V.* (L.) PRUNIFO'LIUM *L.* The Plum-tree-leaved Viburnum.

*Identification.* Lin. Sp., 383.; Dec. Prod., 4. p. 325.; Don's Mill., 3. p. 440.
*Synonyme* *V.* Lentàgo *Du Roi.*
*Engravings.* Wats. Dend. Brit., t. 23.; N. Du Ham., 2. t. 38.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 939.

939. *V.* (L.) prunifolium.

*Spec. Char., &c.* Leaves roundish-obovate and oval, glabrous, rather membranous, crenately serrated, ending in a short acumen. Petioles marginate, glabrous. Cymes sessile. Berries ovate or roundish. (*Don's Mill.*) A large shrub or low tree. New England to Carolina, in hedges and fields; and also Canada, about Lake Huron. Height 8 ft. to 10 ft. Introduced in 1731. Flowers white; May and June. Fruit dark blue; ripe in September.

♃ ♆ 4. *V.* (L.) PYRIFO'LIUM *Poir.* The Pear-tree-leaved Viburnum.

*Identification.* Poir. Dict., 5. p. 658.; Dec Prod., 4. p. 325.; Don's Mill., 3 p 440.
*Engravings.* Dend. Brit., t. 22.; and our *figs.* 940. and 941.

940. *V.* (L.) pyrifolium.

*Spec. Char., &c.* Leaves ovate, acutish, glabrous, subserrated. Petioles smooth. Corymbs somewhat pedunculate. (*Don's Mill.*) A large shrub or low tree. Pennsylvania, New Jersey, &c., on the banks of rivers. Height 5 ft. to 8 ft. Introduced in 1812. Flowers white; May and June. Fruit ovate oblong, black; ripe in September.

941. *V.* (L.) pyrifolium.

Resembles the preceding species, but is not so straggling in its growth.

♃ ♈ 5. *V.* (L.) NU`DUM *L.* The naked-*corymbed* Viburnum.

*Identification.* Lin. Sp., 383.; Dec. Prod., 4. p. 325.; Don's Mill., 3. p. 440.
*Synonyme.* *V.* pyrifòlium *Poir.*
*Engravings.* Wats. Dend. Brit., t. 20.; Mill. Icon., 274.; and our *fig.* 942.

*Spec. Char., &c.* Leaves oval-oblong, angular at the base, bluntish, with revolute obsoletely crenulated margins, quite glabrous. Petioles beset with scale-like scurf or down. Corymbs pedunculate, not involucrate. (*Don's Mill.*) A large shrub or low tree. Canada to Georgia, in swamps, particularly on a sandy soil. Height 6 ft. to 10 ft. Introduced in 1752. Flowers whitish; May to June. Fruit globose, black or dark blue; ripe in September.

*Variety.*

♃ ♈ V. (*L.*) *n.* 2 *squamàtum*; *V.* squamàtum *Willd. Enum.* (Wats. Dend. Brit., t. 24.; and our *fig.* 943.); has the surface, midribs, and petioles of the leaves scaly (whence its name), and their margins crenate, subdentate. The peduncles and pedicels are also covered with minute ferruginous scales; and the leaves are smaller, and of a bluer green than those of *V.* nùdum.

943. *V.* (L.) n. squamàtum.

942. *V.* (L.) nùdum.

Sir W. J. Hooker says of this species, that he cannot satisfy himself of permanently distinguishing characters between it and *V.* Lentàgo and *V.* prunifòlium. We think all the four varieties of the same form.

♃ ♈ 6. *V.* CASSINOI`DES *L.* The Cassine-like Viburnum.

944. *V.* cassinoìdes.

*Identification.* Lin. Sp., p. 384.; Dec. Prod., 4. p. 326.; Don's Mill., 3. p. 440.; Lodd. Cat., ed. 1836.
*Synonyme.* *V.* punctàtum *Rafin.*
*Engraving.* Our *fig.* 944. from a specimen in the Lambertian herbarium.

*Spec. Char., &c.* Leaves ovate-lanceolate, acute at both ends, crenated, glabrous above, with subrevolute edges. Under side of leaves, as well as the petioles, which are keeled, and branches, which are tetragonal, covered with scurfy dots. Corymbs sessile. (*Don's Mill.*) A large shrub or low tree. New York to Carolina, in swamps. Height 3 ft. to 5 ft. in America; 10 ft. to 12 ft. in England. Flowers white; June and July. Fruit ovate, bluish black; ripe in September.

945. *V.* c. lævigàtum.

♃ ♈ 7. *V.* (*C.*) LÆVIGA`TUM *Willd.* The smooth Viburnum.

*Identification.* Willd. Sp., 1. p. 1491. Dec. Prod., 4. p. 326.; Don's Mill., 3. p. 440.
*Synonymes.* *V. cassinoìdes* *Du Roi Harbk.* 2. p. 486.; *V.* lanceolàtum *Hill, Hort. Kew.* t. 19.; *Vibúrnum* carolinìanum *Hort.*; *Cassìne* parágua *Lin. Mant.* 220.; *Cassìne* corymbòsa *Mill. Icon.* t. 83. f. 1.; Thè americano, *Ital.*
*Engravings.* Mill. Icon., t. 83. f. 1.; and our *fig.* 945.

*Spec. Char., &c.* Leaves lanceolate, or oblong-lanceolate, smooth, remotely or unequally serrated, cuneated at the base, and quite entire, glabrous. Branches tetragonally 2-edged, and also glabrous. Corymbs sessile. (*Don's Mill.*) A large shrub or low tree. Virginia and Carolina, near the sea coast. Height 10 ft. to 14 ft. Introduced in 1724. Flowers white; June and July. Fruit black; ripe in September.

### ♃ ♆ 8. *V.* Lanta'na *L.* The Wayfaring Tree.

*Identification.* Lin. Sp., p. 384.; Dec. Prod., 4. p. 326.; Don's Mill., 3. p. 440.
*Synonymes.* *V.* tomentòsum *Lam. Fl. Fr.* 3. p. 363.; wild Guelder Rose, pliant-branched Mealy Tree; Viorne cotonneuse, Camara, Viorne commune, Coudre-moimsinne, Moncienne, *Fr.*; Schlingstrauch, wolliger Schneeball, or Schwalkenstrauch, *Ger.*; Lentaggine, *Ital.*
*Engravings.* Eng. Bot., t. 331.; Jacq. Austr., t. 341.; and our *fig.* 946.

*Spec. Char., &c.* Leaves cordate, rounded, finely serrated, veiny, clothed beneath, but more sparingly on the upper side, with starry mealy pubescence, like that on the branches, petioles, and peduncles. Under side of leaves and branches white from mealy down. Cymes pedunculate, broad, flat, of numerous crowded white flowers. Bracteas several, small, acute. (*Don's Mill.*) A large shrub or low tree, with copious, opposite, round, pliant, mealy branches. Europe and the West of Asia, in low woods and hedges, chiefly on calcareous soils. Height 12 ft. to 15 ft. Flowers white; May and June. Fruit compressed in an early state, red on the outer side, yellow, and finally black, with a little mealy astringent pulp; ripe in August and September. Decaying leaves of a fine deep red.

946. *V.* Lantàna.

*Varieties.*

♃ ♆ V. *L.* 2 *grandifòlia* Ait., *V.* L. latifòlia *Lodd. Cat.*, has leaves larger than those of the species, and, according to some, ought to constitute a separate species itself. Mr. Gordon thinks this variety the same as *V.* (L.) lantanoìdes.

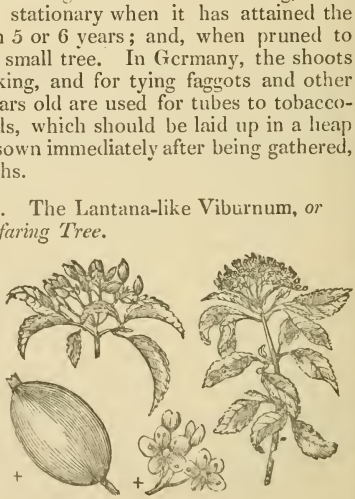
♃ ♆ V. *L.* 3 *fòliis variegàtis* Lodd. Cat. has leaves variegated with white and yellow.

It grows rapidly when young, often producing shoots 5 or 6 feet long, from stools in coppice woods; but becoming stationary when it has attained the height of 12 or 15 feet, which it does in 5 or 6 years; and, when pruned to a single stem, forms a handsome durable small tree. In Germany, the shoots of one year are employed in basket-making, and for tying faggots and other packages; and those of two or three years old are used for tubes to tobacco-pipes. Plants may be raised from seeds, which should be laid up in a heap in the rotting-ground, like haws; for, if sown immediately after being gathered, they will not come up for 18 or 20 months.

### ♃ ♆ 9. *V.* (L.) lantanoì'des *Michx.* The Lantana-like Viburnum, *or American Wayfaring Tree.*

*Identification.* Michx. Fl. Bor. Amer., 1. p. 179.; Dec. Prod., 4. p. 326.; Don's Mill., 3. p. 441.
*Synonymes.* ? *V.* Lantàna β grandifòlia *Ait. Hort. Kew.* ed. 1., vol. i. p. 392.; *V.* grandifòlium *Smith* in *Rees's Cycl.* No. 14.; *V.* Lantàna β canadénsis *Pers.Ench.* 1. p. 327.; Hobble Bush, *Amer.*
*Engravings.* Bot. Cab., t. 1079.; and our *fig.* 947.

*Spec. Char., &c.* Leaves roundish-cordate, abruptly acuminated, unequally serrated; serratures awnless. Branches, petioles, and nerves of leaves clothed with powdery tomentum. Corymbs terminal, almost sessile. Fruit ovate.


947. *V.* (L.) lantanoìdes.

(*Don's Miller.*) The outer flowers of the corymbs are abortive and radiant; a circumstance, as Sir W. J. Hooker observes, noticed by few botanists. A shrub or low tree, very like *V.* Lantàna, but of more humble growth, and the leaves are larger, and tomentose. Canada to Carolina, principally in the forests called Beech Woods, about Quebec and Lake Huron. Height 5 ft. to 10 ft. Introduced in 1820. Flowers white; June and July. Fruit first red, afterwards black. Hort. Soc. Garden.

### ✠ 10. *V.* (L.) DAHU'RICUM *Pall.* The Dahurian Viburnum.

*Identification.* Pall. Fl. Ros., p. 52.; Dec. Prod., 4. p. 328.; Don's Mill., 3. p. 442.
*Synonymes.* Lonícera mongólica *Pall. Fl. Ros.* 1. t. 38. f. t. 58. f. F. G.; Córnus dàùrica *Lam.*
*Engravings.* Pall. Fl. Ros., t. 38., and t. 58. f. F. G.; Gmel. Sib., 3. t. 25.; and our *fig.* 948.

*Spec. Char., &c.* Leaves ovate, somewhat cordate at the base, crenately serrated, beset with stellate down, as well as the branchlets. Corymbs dichotomous, few-flowered. Corollas tubular, somewhat funnel-shaped, bluntly 5-toothed. Berry 5-seeded. (*Don's Mill.*) A shrub resembling *V.* Lantàna. Dahuria. Height 6 ft. to 8 ft. Introduced in 1785. Flowers yellowish white; June and July. Fruit at first red, but afterwards black and sweet; ripe in September. Horticultural Society's Garden.

A tolerably distinct variety; but, in our opinion, by no means entitled to be considered a species.

948. *V.* (L.) dahùricum.

### ✠ 11. *V.* (? L.) COTINIFO'LIUM *D. Don.* The Cotinus-leaved Viburnum.

*Identification.* D. Don Prod. Fl. Nep., 1. p. 141.; Dec Prod., 4. p. 327.; Don's Mill, 3. p. 441.
*Synonyme.* *V. Mullaha* Ham. in D. Don Prod. Fl. Nep. 1. p. 141.
*Engravings.* Bot. Reg., t. 1650.; and our *fig.* 949. from the plant in the Horticultural Society's Garden, and *fig.* 950. from the Bot. Reg.

949. *V.* (? L.) cotinifòlium.

*Spec. Char., &c.* Leaves roundish oval, quite entire, clothed with stellate tomentum on both surfaces, grey beneath, as well as the branches. Corymbs terminal, woolly. Flowers white. (*Don's Miller.*) A shrub. Himalayas, at the height of from 5000 ft. to 7000 ft., 30° N. lat. Height 6 ft. to 8 ft. Introduced in 1832, or before. Flowers white, tinted with pink; April and May.

950. *V.* (? L.) cotinifòlium.

In general appearance it closely resembles *V.* Lantàna; but the flowers are much larger, and more tinted with pink; and neither flat nor bell-shaped, but of a distinct obconical figure.

### ✠ 12. *V.* DENTA'TUM *Lin.* The toothed-*leaved* Viburnum.

*Identification.* Lin. Sp., p. 384.; Dec. Prod., 4. p. 326.; Don's Mill., 3. p. 441.
*Synonymes.* *V.* dentàtum lùcidum *Ait. Hort. Kew.* 1. p. 372.; *V.* dentàtum glabéllum *Michx Fl. Bor. Amer.* 1. p. 179.; Arrow-wood; Viorne dentée, *Fr.*
*Engravings.* Jacq. Hort. Vind., 1. t. 36.; Wats. Dend. Brit., t. 35.; and our *figs.* 951. and 952.

*Spec. Char., &c.* Partly glabrous. Leaves ovate, and nearly orbicular, plicate, coarsely and dentately serrated, with the nerves thick and feathered, glabrous on both surfaces. Cymes or corymbs pedunculate. Berries small, and nearly globose, of a dark blue colour, and crowned by the calyx. (*Don's Mill.*) A large shrub. New York to Carolina, in mountain woods; and also in Mexico. Height 4 ft. to 6 ft. Introduced in 1763. Flowers white; June and July. Fruit small, nearly globose, dark blue, and crowned by the calyx; not very frequently ripened in England.

951. *V.* dentàtum.

952. *V.* dentàtum.

*Varieties.* In the arboretum of Messrs. Loddiges, are plants named V. *d. pubéscens*, V. *d. fòliis variegàtis*, V. *acuminàtum*, V. *longifòlium*, and V. *montànum*, which are either varieties of, or identical with, this species.

### 13. *V.* (D.) PUBE'SCENS *Pursh.* The downy Viburnum.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 202.; Dec. Prod., 2. p. 326.; Don's Mill., 3. p. 441.
*Synonymes.* *V.* dentàtum β pubéscens *Ait. Hort. Kew.* 1. p. 168.; *V.* dentàtum semi-tomentòsum *Mich. Fl. Bor. Amer.* 1. p. 179.; *V.* tomentòsum *Rafin. Med. Rep.* 2. p. 860.; *V.* villòsum *Rafin.* in *Desf. Journ.* 1. p. 228.; *V.* Rafinesquiànum Schultes Syst. 6. p. 630.
*Engraving.* Our *fig.* 953. from a specimen in the British Museum.

*Spec. Char., &c.* Pubescent. Leaves ovate, acuminated, on short petioles, coarsely serrate-toothed, villous beneath, with the nerves feathered and prominent. Corymbs pedunculate. (*Don's Mill.*) A low shrub. Virginia and Carolina. Height 3 ft. Introduced in 1736. Flowers white; June and July. Fruit small ovate; smaller in every part than *V.* dentàtum. The fruit is dark blue, but sparingly produced; the leaves die off yellow and red.

953. *V.* (d.) pubéscens.

### 14. *V.* NI'TIDUM *Ait.* The shining-*leaved* Viburnum.

*Identification.* Ait. Hort. Kew., 1. p. 371.; Pursh Fl. Amer. Sept., 1. p. 202.; Dec. Prod., 4. p. 326.; Don's Mill., 3. p. 440.
*Engraving* Our *fig.* 954. from a specimen in the Lambertian herbarium.

*Spec. Char., &c.* Quite glabrous. Leaves linear-lanceolate, shining above, obsoletely serrated or entire. Branches tetragonal. (*Don's Mill.*) A low shrub, with small leaves. Carolina and Georgia, in sandy barren woods. Height 2 ft. to 4 ft. Introduced in 1758. Flowers white; May and June. Fruit; ?. H. S.

Judging from the plant in the Horticultural Society's Garden, this is a very distinct species, and its smooth shining yellowish green leaves render it more ornamental than most of the others of this section.

954. *V.* (d. nitidum.

## § iii. *O'pulus* Tourn.

*Identification.* Tourn. Inst., t. 376.; Dec. Prod., 4. p. 328.; Mœnch Meth., p. 605.

*Sect. Char.* Outer flowers of the corymbs radiant and sterile, much larger than the rest, which are fertile. Seed obcordate. (*Don's Mill.*) Leaves mostly 3-lobed, and deciduous.

### 15. *V. O'*PULUS *L.* The Guelder Rose.

*Identification.* Lin. Sp., 384.; Dec. Prod., 4. p. 328.; Don's Mill., 3. p. 442.
*Synonymes.* *V.* lobàtum *Lam. Fl. Fr.* 3. p. 363.; *O'*pulus glandulòsus *Mœnch Meth.* p. 505.; *O'*pulus *Raii Syn.* 460.; *S*ambùcus aquática *Bauh. Pin.* 456.; Marsh Elder, Rose Elder Water Elder;

Viorne-Obier, l'Obier d'Europe, *Fr.*; Schwalkenbeer Strauch, Wasserholder, Schneeball, *Ger.*; Maggi, *Ital.*

*Derivation.* Altered from *Pópulus*, the poplar, from some supposed resemblance between the leaves of the plant and those of the poplar. The English name, Guelder Rose, is derived from Guelderland, where the double-flowered variety was first originated.

*Engravings.* Engl. Bot., t. 332.; N. Du Ham., 2. t. 39.; and our *fig.* 955.

955. *V. O'pulus.*

*Spec. Char., &c.* Quite glabrous in every part. Leaves broad, 3-lobed, acuminated, unequally serrated, veiny. Petioles beset with glands towards the top, and several oblong leafy appendages lower down. Cymes pedunculate, white, with linear bracteas; with several of the marginal flowers dilated, flat, radiant, and without stamens or pistils. Seed compressed. (*Don's Mill.*) A shrub or low tree. Europe, and part of Asia, in moist hedges and swampy thickets; frequent in Britain, and also in Sweden, as far north as lat. 61°. Height 6 ft. to 12 ft. in a wild state, and higher in gardens. Flowers white; May and June. Fruit elliptical, crowned by the limb of the calyx, bright red, very juicy, but bitter and nauseous. Decaying leaves beautiful pink or crimson. Naked young wood smooth, green.

*Varieties.*

- V. O. 2 *stérilis* Dec. Prod. iv. p. 328., Don's Mill. iii. p. 442. *V. O. ròseum Rœm. et Schult. Syst.* vi. p. 635.; the Snow-ball Tree, or Guelder Rose; Rose de Gueldres, Pellotte de Neige, Boule de Neige, Poire molle, *Fr.*; Schneeballe, *Ger.*—The specific name ròseum is applied on account of the form of the flowers, and not because of their colour. Layers, sometimes by suckers, or it might be grafted on the species.
- V. O. 3 *fòliis variegàtis* Lodd. Cat. ed. 1836 has the leaves variegated with white and yellow.
- V. O. 4 *nàna* Hort.—A very distinct little plant, scarcely 1 ft. in height. Horticultural Society's Garden.

The Guelder rose, in a wild state, is not remarkable for the beauty of its flowers; but its bright red berries, which ripen in September, and which, towards the middle of October, assume a beautiful pink, almost compensate for the inferiority of the species to the variety in point of flowers. The leaves of both die off of a fine red on the first approach of frost. The snow-ball tree, or the Guelder rose (*V. O.* 2 stérilis), is one of the most ornamental shrubs, or low trees, that can be planted in a pleasure-ground.

### 16. *V.* (*O.*) ACERIFO'LIUM *L.* The Maple-leaved Guelder Rose.

*Identification.* Lin. Sp., 383.; Pursh Sept., 1. p. 203.; Dec. Prod., 4. p. 327.; Don's Mill., 3. p. 442.

*Engravings.* Vent. Hort. Cels., t. 72.; Wats. Dend. Brit., t. 118.; and our *fig.* 956.

956. *V. O. acerifolium.*

*Spec. Char., &c.* Branchlets and petioles pilose. Leaves ovate-cordate, usually 3-lobed, acuminated, sharply and loosely serrated, downy beneath. Petioles glandless, and, when young, stipulaceous at the base, and rather tomentose. Corymbs terminal, pedunculate, not radiant. (*Don's Mill.*) A low shrub. New England to Carolina, in rocky mountainous situations. Height 4 ft. to 6 ft. Introduced in 1736. Flowers white; May and June. Fruit black, oval, and compressed; ripe in September.

17. *V. (O.)* ORIENTA'LE *Pall.* The Eastern Guelder Rose.

*Identification.* Pall. Ross., t. 58. f. H.; Dec. Prod., 4. p. 328.; Don's Mill., 3. p. 442.
*Synonyme.* *O'*pulus orientàlis fòlio amplíssimo tridentàto *Tourn. Cor.* p. 42.
*Engravings.* Pall. Fl. Ross., t. 58. f. H.; and our *fig.* 957.

*Spec. Char., &c.* Leaves 3-lobed, acuminated, coarsely and bluntly toothed. Petioles glandless, glabrous. Corymbs terminal, not radiant. Fruit oblong, compressed. Seed oval, furnished with two channels on both sides, as in *V.* Lantàna. (*Don's Mill.*) A low shrub. Georgia, in Asia Minor, in woods, on the mountains. Height 6 ft. to 10 ft. Introduced in 1827. Flowers white; July. Fruit; ?.

957. *V.* (*O.*) orientàle.

18. *V.* (*O.*) Oxyco'ccos *Pursh.* The Cranberry-*fruited* Guelder Rose.

*Identification.* Pursh Sept., 1. p. 203.; Dec. Prod., 4. p. 328.; Don's Mill., 3. p. 442.
*Synonymes.* *V. o*pulóides *Mühl. Cat.* 32.; *V.* trilobum *Marsh. Arb.* p. 162.; *V. O'*pulus americàna *Ait. Hort. Kew.* 1. p. 373.
*Engraving.* Our *fig.* 958. from a specimen in the Lambertian herbarium.

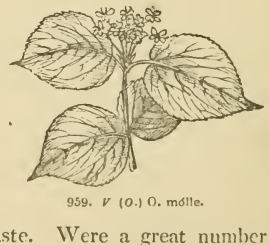
*Spec. Char., &c.* Leaves 3-lobed, acute behind, 3-nerved. Lobes divaricate, acuminated, coarsely and distantly serrated. Petioles glandular. Cymes radiant. (*Don's Mill.*) A large shrub or low tree. New York and New Jersey, on mountains and throughout Canada, to the arctic circle. Height 6 ft. to 12 ft. Flowers white; July. Fruit subglobose, red, of an agreeable acid, resembling that of cranberries, for which they are a very good substitute; ripe in September.

958. *V.* (*O.*) Oxycóccos.

*Varieties.*

V. (O.) *O.* 2 *subintegrifòlius* Hook. Fl. Bor. Amer. i. p. 281., Don's Mill. iii. p. 442.—Leaves but little cut, very pubescent beneath. A native of the banks of the Columbia.

V. (O.) *O.* 3 *móllis. V.* mólle *Michx. Fl. Bor. Amer.* i. p. 180., *Don's Mill.* iii. p. 442.; *V. a*nifòlium *Marsh Arb.* p. 162. (Our *fig.* 959.) — Leaves nearly orbicular, cordate, plicate, toothed. (*Don's Mill.*) Fruit oblong ovate, red.


959. *V* (*O.*) O. mólle.

Very like *V. O'*pulus, and there can be no doubt but that it is only the American form of that species. The fruit is comparatively large, and not disagreeable to the taste. Were a great number of seedlings grown till they produced fruit, and then the plant producing the largest and best-flavoured fruit selected and propagated by extension, the cranberry-fruited guelder rose might be cultivated in our kitchen-gardens and orchards for the same purpose as the common cranberry. We have no doubt whatever that its fruit would be soon as much relished by the public as the cranberry; and, as the guelder rose is less difficult in regard to soil and situation than that plant, a crop of fruit might be depended on with greater certainty. At all events, this and similar experiments offer interesting and useful employment to the amateur who has nothing better to do.

19. *V.* (*O.*) EDU'LE *Pursh.* The edible-*fruited* Guelder Rose.

*Identification.* Pursh Sept., 1. p. 203.; Dec. Prod., 4. p. 328.; Don's Mill., 3. p. 442.

*Synonyme.* *V. O'pulus* edùlis *Michx. Fl. Bor. Amer.* 1. p. 180.
*Engraving.* Our *fig.* 960. from a specimen in Dr. Lindley's herbarium.

*Spec. Char., &c.* Leaves 3-lobed, bluntish behind, and 3-nerved. Lobes very short, denticulately serrated; serratures acuminated. Petioles glandular. Outer flowers of corymb radiant. A smaller and more upright shrub than the preceding species. The berries of the same colour and size; but, when completely ripe, more agreeable to eat, and frequently employed as a substitute for cranberries. It does not seem to differ much from *V.* Oxycóccos, except in the broader base of the leaf. (*Don's Mill.*) Canada to New York, on the banks of rivers. Height 5 ft. to 10 ft. Introduced in 1812. Flowers white; July. Fruit as in the preceding species.

960. *V. (O.)* edùlis.

## Sect. II. Lonice'reæ.

## Genus III.

**DIERVI'LLA** Tourn. The Diervilla. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Tourn. Act. Ac. Par., 1706. t. 7. f. 1.; Dec. Prod., 4. p. 330.
*Synonymes.* Lonícera sp. *L.*; Weigela Thunb. Fl. Jap. p. 6.; Weigèlia Pers. Ench. 1. p. 176.
*Derivation.* Named by Tournefort, in compliment to *M. Dierville*, a French surgeon, who was the first to introduce D. canadénsis into Europe.

*Gen. Char.* *Calyx* tube oblong, bibracteate at the base; limb 5-cleft. *Corolla* funnel-shaped, 3—5-cleft, spreading twice the length of the calyx. *Stamens* 5, somewhat exserted. *Stigma* capitate. *Capsule* oblong, acute, 1-celled. *Seeds* numerous, minute. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, deciduous; ovate, acuminated, serrated. *Flowers* in axillary pedùncles, bibracteate, usually dichotomous. — Shrubs, deciduous. North America. Common soil, and suckers. Five species, natives of Japan, and figured by Sieboldt, are probably hardy, but they have not yet been introduced.

### 1. D. canade'nsis *Willd.* The Canadian Diervilla.

*Identification.* Willd. Enum., 1. p. 222.; Dec. Prod., 4. p. 330.; Don's Mill., 3. p. 444.
*Synonymes.* Lonícera Diervílla Lin. Mat. Med. p. 62.; D. Tournefórtii Michx. Fl. Bor. Amer. 1. p. 107.; D. humilis *Pers. Ench.* 1. p. 214.; D. lùtea *Pursh Sept.* 1. p. 162.; D. trífida *Mœnch Meth.* 492.; D. acadiénsis *Du Ham. Arb.* 1. t. 87.
*Engravings.* Bot. Mag., t. 1796.; Schmidt Baum., t. 116.; and our *figs.* 961. and 962.

*Spec. Char., &c.* Leaves on short petioles, ovate, acuminated, serrated, and, as well as the petioles, glabrous. Fruit a dry brown capsule. Root

961. D. canadénsis.

creeping, throwing up suckers. (*Don's Mill.*) A bushy shrub. Carolina, New England, and Newfoundland, on rocks and the highest mountains. Height 3 ft. to 4 ft. Introduced in 1739. Flowers yellow; June and July. Fruit brown; ripe in September.

962. D. canadénsis.

There are a number of varieties of this species, differing in respect to the size of the flowers and of the leaves, but they are not worth keeping distinct.

## Genus IV.

LONI'CERA Desf. The Lonicera, *or* *Honeysuckle.* *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Desf. Fl. Atl., 1. p. 183.; Dec. Prod., 4. p. 330.; Don's Mill., 3. p. 444.
*Synonymes.* Lonícera sp. *Lin.*, and many authors; Caprifòlium and Xylósteum *Juss. Gen.* p. 212.; Xylósteum, Caprifòlium, Chamæcérasus, *Periclýmenum* *Tourn. Inst.* t. 378. and 379.; Caprifòlium and Lonicer*a* Rœm. et Schult. Syst.; Lonícer*a* and Xylósteum *Torrey Fl. Un. St.*; Chèvrefeuille, *Fr.*; Geissblätt, Honeigblume, and Lonicere, *Ger.*
*Derivation.* Named after *Adam Lonicer*, a German, who was born in 1528, and died in 1556. There was another Lonicer, John, who wrote comments on Dioscorides.

*Gen. Char.* *Calyx* tube 5-toothed. *Corolla* tubular, campanulate, or funnel-shaped, with a 5-cleft, usually irregular, limb. *Stamens* 5. *Style* filiform. *Stigma* capitate. *Berries* 3-celled. *Seeds* crustaceous. (*Don's Mill.*)

*Leaves* simple, opposite, stipulate, deciduous, or evergreen; sometimes connate, entire, occasionally runcinate in the same species. *Flowers* axillary, or capitate, variously disposed. — Shrubs, erect or twining; natives of Europe, the North of Africa, Asia, and America.

The greater number of the species and varieties are of easy culture in British gardens, in common garden soil; and they are all propagated by cuttings, or some of them more readily by layers. The flowers of some of the species are highly fragrant and ornamental; and that of the common European honeysuckle is supposed to have given rise to one of the most beautiful ornaments of Grecian architecture. "The honeysuckles offer an easy opportunity of improvement, by intermixing the fragrant and more vigorous with the yellow and the scarlet." (*Herb. Amaryll.* p. 363.) The genus Lonícer*a* of Linnæus was separated by Rœmer and Schultes into the genera Lonícer*a* and Caprifòlium; but they were reunited by DeCandolle, whose arrangement has been followed by Sir W. J. Hooker and G. Don, and is adopted by us on the present occasion. The distinctive characters of the sections are as follows:—

*Caprifòlium.* Plants twining. Flowers in capitate whorls.
*Xylósteum.* Plants twining or erect. Flowers axillary.

### § i. *Caprifòlium* Dec.

*Identification.* Dec. Fl. Fr., 4. p. 270.; Prod., 4. p. 331.
*Synonymes.* Caprifòlium *Juss. Gen.* 212.; Lonícer*a* Torr. Fl. Un. St. 1. p. 242., but not of Schult.

*Derivation.* From *caper*, a goat, and *folium*, a leaf; in reference to the climbing habit of the species; or, as appears much more probable, because goats are fond of browsing on its leaves.

*Sect. Char.* Berries solitary, while young 3-celled, but when mature usually 1-celled, crowned by the tube of the calyx, which is permanent. Flowers disposed in capitate whorls. Twining shrubs, mostly deciduous; natives of Europe, the North of Africa, China, Nepal, and North America; all of easy culture, and tolerably hardy, but none of them of long duration.

A. *Flowers ringent.* — *Caprifolium* Tourn. Inst., p. 608.

♃ 1. L. PERICLY'MENUM *L.* The Woodbine, *or common Honeysuckle.*

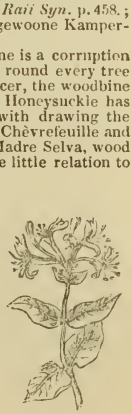
*Identification.* Lin. Sp., p. 247.; Dec. Prod., 4. p. 331.; Don's Mill., 3. p. 445.

*Synonymes.* Periclýmenum *Ger. Emac.* p. 891.; *Periclýmenum* germánicum *Riv. Mon. Irr.* t. 122.; *P.* hortense *Gesn. Icon. Pict.* fasc. 1. 38. t. 7. f. 49.; Caprifolium *Periclýmenum Rœm. et Schult.* 5. p. 262.; Caprifolium sylváticum *Lam. Fl. Fr.* 3. p. 365.; Caprifolium *Raii Syn.* p. 458.; Woodbind; Chèvrefeuille des Bois, *Fr.*; wildes gemeines Geissblätt, *Ger.*; gewoone Kamperfoelie, *Dutch*; Madre Selva, *Ital.* and *Span.*

*Derivation.* *P*ericlýmenum, from *peri*, round about, and *kuliō*, to roll. Woodbine is a corruption of woodbind, and both allude to the habit of the common sort, of winding itself round every tree and shrub within its reach, and binding them together. In the time of Chaucer, the woodbine was considered as the emblem of true love, from this property. The name of Honeysuckle has reference to the fondness of children for this plant, who amuse themselves with drawing the trumpet-shaped corollas from the calyx, to suck the honey from the nectary. Chèvrefeuille and Geissblätt both signify literally, goat's leaf. The Spanish and Italian names, Madre Selva, wood mother, and the Dutch name Kamperfoelie, the champion mace, seem to have little relation to the plant.

*Engravings.* Engl. Bot., t. 800.; Schmidt Arb., t. 107.; and our *fig.* 963.

*Spec. Char., &c.* Leaves all separate, deciduous, sometimes downy, glaucous beneath, ovate, obtuse, attenuated at the base; upper ones the smallest. Heads of flowers all terminal, ovate, imbricated. Flowers ringent. There are varieties of this species with either smooth, pubescent, or variegated leaves; and, when the plant grows by the sea side, they are occasionally more glaucous and rather succulent. Corollas externally deep red; or, in the earlier-flowering varieties, all over buff-coloured; in the maritime plant, smaller and greenish. Berries nearly globular, accompanied by permanent bracteas. (*Don's Mill.*) A twining deciduous shrub, which always turns from east to west. Europe; common in hedges, groves, and thickets; plentiful in Britain. Stem 15 ft. to 30 ft. Flowers rich yellow; June and July, and, in moist summers, also in August, and sometimes in September. Fruit deep red, bitter and nauseous; ripe in September.



963. L. *Periclýmenum.*

*Varieties.*

♃ *L.* P. 2 *serótinum* Ait. Hort. Kew., i. p. 378. *P*ericlýmenum germánicum *Miller Dictionar.* No 4., (Schmidt, Oester. Baumz. t. 108.; and our *fig.* 964.) — Branches glabrous. Flowers late, and reddish. This, the late red honeysuckle, produces a greater number of flowers together than either the Italian (No. 3.) or Dutch honeysuckle, so that it makes a finer appearance than either of them during its period of flowering. Introduced in 1715.

964. L. *P.* serótinum.

♃ *L.* P. 3 *bélgicum.* *P*ericlýmenum germánicum *Mill. Dict.* No. 4.— Branches smooth, purplish. Leaves oblong-oval, of a lucid green above, but pale beneath, on long petioles. Flowers in terminal verticillate heads; each flower arising out of a scaly cover, reddish on

the outside, and yellowish within; of a very agreeable odour. This, which is commonly called the Dutch honeysuckle, may be trained with stems, and formed into heads; which the wild sort cannot, the branches being too weak and trailing for the purpose.

♆ *L.* P. 4 *quercifolium* Ait. Hort. Kew., the Oak-leaved Honeysuckle, has the leaves sinuated like those of an oak. Found wild in several parts of England. There is a subvariety of this, with the leaves slightly marked near the margin with yellow. The flowers are like those of the species.

All the varieties of the common honeysuckle are beautiful and fragrant; and, either trained against a wall, twining round a pole and over a parasol top, or climbing and rambling among bushes, form great ornaments to gardens. They are propagated by cuttings; but a large proportion of these do not succeed, owing to the tubular shoots admitting the wet during winter, and rotting the upper part of the cutting, that the more common mode of propagation is by layers. Both layers and cuttings are made in the autumn, as soon as the leaves have dropped; and they become sufficiently rooted in one year. (See *Encyc. of Gard.*, edit. 1835.)

♃ 2. L. CAPRIFO'LIUM *L.* The Goat's-leaf, *or pale perfoliate*, Honeysuckle.

*Identification.* Lin. Sp., p. 246.; Dec. Prod., 4. p. 331.; Don's Mill., 3. p. 444.
*Synonymes.* *Periclýmenum* perfoliàtum *Ger. Emac.* p. 891.; Chèvrefeuille des jardins, *Fr.*; Durchwachsene, *Ger.*; Caprifolio, *Ital.*
*Engravings.* Eng. Bot., t. 799.; and our *fig.* 965.

*Spec. Char., &c* Leaves deciduous, obovate, acutish, glaucous; uppermost ones broader and connate. Flowers ringent, terminal, disposed in capitate whorls. Stems twining from left to right. Buds acute, glaucous. The lower leaves are distinct, and somewhat stalked; two or three of the upper pairs united; the uppermost of all forming a concave cup. Flowers in one or more axillary whorls, the uppermost whorl terminal; with a central bud, 6 in each whorl, highly fragrant, 2 in. long, with a blush-coloured tube. Berries each crowned by an almost entire calyx. (*Don's Mill.*) A deciduous twining shrub. Middle and South Europe, even to the river Tereck in Siberia, and on Mount Caucasus, in woods, hedges, and thickets; in England, it has been occasionally found in similar situations, in an apparently wild state Stem 15 ft. to 20 ft. Flowers blush-coloured; May and June. Fruit elliptical, tawny or orange-coloured; ripe September.

965. L. Caprifolium.

♃ 3. L. (*C.*) ETRU'SCA *Santi.* The Etruscan Honeysuckle.

*Identification.* Santi Viagg., 1. p. 113. t. 1.; Dec. Prod., 4. p. 331.; Don's Mill., 3. p. 444.
*Synonymes.* L. etrúsca *Hort. Fl. Austr.* 1. p. 298.; Caprifolium etrúscum *Rœm. et Schult. Syst.* 5. p. 261.; Periclýmenum *Gouan Hort.* p. 101.; Caprifolium itàlicum perfoliàtum præcox *Tourn. Inst.* p. 608.; The Italian Honeysuckle; Mansorino, *Ital.*
*Engravings.* Santi Viagg., 1. p. 113. t. 1.; and our *fig.* 966.

*Spec. Char., &c.* Leaves deciduous, obovate, obtuse, pubescent; lower ones on short petioles, upper ones connately perfoliate, acute, glabrous. Flowers disposed in verticillate heads, with usually about three heads on the top of each branch; glabrous. (*Don's Mill.*) A deciduous twining shrub. South of France, Sicily, Valais, Carniola, and Dalmatia, on hills. Stem 15 ft. to 20 ft. Introduced ? 1700.

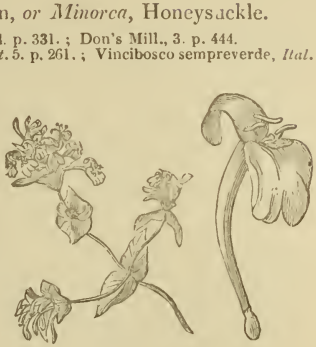
966. L. (C.) etrúsca.

Flowers purplish on the outside, yellow within, scented; May and June. Fruit yellow; ripe in August.

♃ 4. L. IMPLE'XA *Ait.* The interwoven, *or Minorca*, Honeysuckle.

*Identification.* Ait. Hort. Kew., 1. p. 231.; Dec. Prod., 4. p. 331.; Don's Mill., 3. p. 444.
*Synonymes.* Caprifòlium implèxum *Ræm. et Schult. Syst.* 5. p. 261.; Vincibosco sempreverde, *Ital.*
*Engravings.* Bot. Mag., t. 640.; and our *fig.* 967.

*Spec. Char., &c.* Quite glabrous. Leaves permanent, evergreen, glaucescent; lower ones oblong, distinct; middle ones perfoliate; uppermost ones connate, forming a hollow roundish cup. Flowers disposed in capitate whorls, ringent; purplish before they open, but becoming paler on the outside as they expand, white on the inside; but finally changing to yellow, as in the common woodbine. (*Don's Mill.*) A twining evergreen shrub. Balearic Islands, and Sicily. Stems 10 ft. to 15 ft. Introduced in 1772. Flowers purplish, finally changing to yellow; June to September. Fruit ?.


967. L. impléxa.

*Variety.*

♃ *L. i.* 2 *baleárica* Viv. Camb. p. 84. Caprifòlium baleáricum *Dum. Cours. Bot. Cult.*, ed. 2. vol. iv. p. 358.; L. baleárica *Dec. Fl. Fr. Suppl.* 499.; L. Caprifòlium *Desf. Fl. Atl.* i. p. 183. — Lower leaves somewhat cordate; upper ones connate, obovate, glaucous beneath. Evergreen. Bark of branches violaceous, clothed with glaucous bloom. Flowers 4—6 in a head, large, cream-coloured, 15 in. to 18 in. long.

♃ 5. L. FLA'VA *Sims.* The yellow-*flowered* Honeysuckle.

*Identification.* Bot. Mag., t. 1318.; Dec. Prod., 4. p. 332.; Don's Mill., 3. p. 445.
*Synonymes.* Caprifòlium flàvum *Ell. Sketch.* 1. p. 271.; Caprifòlium Fràseri Pursh Sept. 1. p. 271.
*Engravings.* Bot. Mag., t. 1318.; and our *fig.* 968.

968. L. flàva.

*Spec. Char., &c.* Quite glabrous. Branches twining a little. Leaves ovate, sometimes glaucous beneath, with cartilaginous margins; upper leaves connately perfoliate. Flowers in terminal verticillate heads. Corollas rather ringent; with oblong obtuse lobes. Flowers bright yellow, but, as they fade, becoming orange-coloured; very fragrant. (*Don's Mill.*) A twining, deciduous shrub. Paris Mountains, in South Carolina; and the Catskill Mountains, New York. Stem 10 ft. to 12 ft. Introduced in 1810. Flowers bright yellow; June and July. Fruit ?.

A very desirable species, from the large size, rich yellow colour, and grateful fragrance of its flowers; but somewhat tender, and, even in the neighbourhood of London, requiring the protection of a wall.

♃ 6. L. (F.) PUBE'SCENS *Sweet.* The pubescent Honeysuckle.

*Identification.* Sweet Hort. Brit., p. 194.; Dec. Prod., 4. p. 332.; Don's Mill., 3. p. 445.

969. L. (f.) pubéscens.

*Synonymes.* Caprifòlium pubéscens *Goldie* in *Edin. Phil. Journ.* 1822. April, p. 323; L. hirsùta *Eaton Man. Bot. Ed.* 3. p. 341.; L. Góldii Spreng. Syst. 1. p. 758.
*Engravings.* Hook. Exot. Fl., t. 27.; Bot. Mag., t. 3103.; and our *fig.* 969.

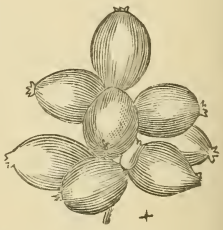
*Spec. Char., &c.* Leaves broad-ovate-elliptic, on short petioles, pubescent and ciliated, glaucous beneath; upper ones connately perfoliate. Spikes or racemes composed of verticillate heads of flowers. Corollas beset with glandular pubescence. Flowers yellow. (*Don's Mill.*) This appears to hold the place in the more northern parts which L. flàva does in the south; of which, indeed, Dr. Torrey suspects it to be a variety. (*Hook. Fl. Bor. Amer.*, p. 282.) A deciduous twining shrub. North America, in Massachusetts, Vermont, New York, and Canada, in many places. Stems 10 ft. to 12 ft. Introduced in 1822. Flowers yellow; June and July. Fruit?. It appears hardier than the preceding sort.

♃ 7. L. PARVIFLO'RA *Lam.* The small-flowered Honeysuckle.

*Identification.* Lam. Dict., 1. p. 728.; Dec. Prod., 4. p. 332.; Don's Mill., 3. p. 445.
*Synonymes.* Caprifòlium parviflòrum *Pursh Sept.* 1. p. 161.; Lonícera dioíca *Lin. Syst. Veg.* ed. 13. p. 181.; L. mèdia *Murr. Nov. Comm. Gött.* 1776 p. 28. t. 3.; Caprifòlium bracteòsum *Michx. Fl. Bor. Amer.* 1. p. 105.; Caprifòlium dioícum *Rœm. et Schult. Syst.* 5. p. 260.; Caprifòlium glaúcum *Mœnch*; glaucous Honeysuckle; Chèvrefeuille dioique, *Fr.*; Meergrünes Geissblätt, *Ger.*; Middelboore Kamperfoelie, *Dutch.*
*Engravings.* Krauss, t. 27.; and our *figs.* 970. and 971.

970. L. parviflòra.

*Spec. Char., &c.* Quite glabrous. Leaves elliptic, sessile; lower ones somewhat connate; upper ones connately perfoliate, very glaucous beneath. Flowers disposed in verticillate heads. Corollas glabrous, with tubes gibbous at the base on one side. Filaments rather hairy. Flowers yellow, and smaller than in any of the foregoing species, but varying exceedingly in their colour; for there is a variety mentioned by Michaux in which they are purple. (*Don's Mill.*) A deciduous twining shrub. New England to Carolina, in rocky shady situations; frequent in Canada. Stem 10 ft. to 15 ft. Introduced in 1776. Flowers small, yellow; June and July. Fruit scarlet.



971. L. parviflòra.

♃ 8. L. (P.) DOUGLA'SII Dec. Douglas's Honeysuckle.

*Identification.* Dec. Prod., 4. p. 332.; Hook. Fl. Bor. Amer., 1. p. 282.; Don's Mill., 3. p. 445.
*Synonyme.* Caprifòlium Douglàsii Lindl. Hort. Trans. 7. p. 244.
*Engraving.* Our *fig.* 972. from a specimen in Dr. Lindley's herbarium.

*Spec. Char., &c.* Leaves oval, acute at both ends, petiolate, glabrous, ciliated, tomentose on the outside; upper ones connate. Flowers disposed in capitate whorls. Stigmas exserted. Stamens enclosed. Corollas pubescent, bilabiate, deep orange red. Leaves 4 in. to 6 in. long, deep green. (*Don's Mill.*) A deciduous twining shrub. Western coast of North America, on the banks of the Saskatchawan. Stems 10 ft. to 15 ft. Introd. 1824. Flowers deep orange yellow; July to September. Fruit?.

972. L. (p.) Douglasii.

### ⚹ 9. L. HISPI'DULA *Dougl.* The bristly Honeysuckle.

*Identification.* Dougl. MSS.
*Synonyme.* Caprifolium hispidulum *Lindl. Bot. Reg.*
*Engravings.* Bot. Reg., t. 1761.; and our *figs.* 973. and 974.

973. L. hispidula.

*Spec. Char., &c.* Hispidly pilose. Umbels pedunculate. Corolla smooth, bilabiate, longer than the tube of the limb. Stamens exserted. Leaves petiolate, cordate-ovate, obtuse, glaucous beneath, sessile towards the summit. Stem slender. Flowers small. (*Lindl.*) A prostrate shrub. North-west America, in woods. Stem 2 ft. to 3 ft. Introduced in 1826. Flowers rose-coloured, nearly scentless; July and August. Fruit ?.

974. L. hispidula.

A very rare species, quite different from all the other honeysuckles. In common soil it can scarcely be kept alive; but in peat and loam it grows as readily as any other hardy American plant.

### ♃ 10. L. GRA'TA *Ait.* The pleasant, *or evergreen*, Honeysuckle.

*Identification.* Ait. Hort. Kew., 1. p. 231.; Dec. Prod. 4. p. 332.; Don's Mill., 3. p. 446.
*Synonymes.* Caprifolium grâtum *Pursh Sept.* 1. p. 161.; L. virginiàna *Marsh Arb.* 136.; ? Periclýmenum americânum *Mill. Dict.* No. 7.; Caprifolio sempreverde, *Ital.*
*Engravings.* Hort. Angl., p. 15. No. 10. t. 8.; and our *fig.* 975.

975. L. gràta.

*Spec. Char., &c.* Leaves permanent, obovate, rather mucronate, glaucous beneath, and reticulately veined, glabrous; upper ones connately perfoliate. Spikes composed of approximate whorls of flowers. Corollas ringent. Branches reddish brown. Flowers inclining to scarlet on the outside, according to Pursh. Corolla ringent, reddish on the outside, and yellow inside. Berries red. (*Don's Mill.*) A sub-evergeen twining shrub. Carolina to New York, on the mountains, rambling among rocks, in shady moist situations, but rare. Stems 15 ft. to 20 ft. Introd. 1730. Flowers yellow, red, and white; June or July to September, and sometimes till the commencement of frost. Fruit red; ripe in September.

The plant is of vigorous growth, with woody stems, and will live longer than most of the other species. It is inferior in vigour only to L. japónica, the Caprifòlium flexuòsum of the nurseries.

976. L. sempervirens.

B. *Limb of Corolla nearly equal.* — *Periclýmenum* Tourn.

### ♃ 11. L. SEMPERVI'RENS *Ait.* The evergreen *Trumpet* Honeysuckle.

*Identification.* Ait. Hort. Kew., 1. p. 230.; Dec. Prod., 4. p. 332.; Don's Mill., 3. p. 446.
*Synonymes.* Caprifolium sempervìrens *Michx. Fl. Bor. Amer.* 1. p. 105.; *Periclýmenum* sempervìrens *Mill. Dict.* No. 1.;

*Alatérnus sempervìrens Kœhl. ex Steud.*; *Periclýmenum virginìacum Riv. Mon.* 116.; Madre Selva de Virginia, *Ital.*
*Engravings.* Hort. Angl., t. 7.; Krauss, t. 1.; and our *fig.* 976.

*Spec. Char., &c.* Quite glabrous. Leaves persistent, sub-evergreen, obovate or ovate, glaucous beneath; upper ones connately perfoliate. Spikes nearly naked, composed of whorls of flowers. Tube of corolla ventricose on the upper side; limb nearly regular, with 5 roundish lobes. Branches brown. Leaves deep green above, 2 in. long and 1 in. broad. Whorls of flowers usually 3, at the top of each branch. Flowers of a beautiful scarlet outside, and yellow inside, about 1 in. long, inodorous. There are several varieties of this species, particularly one with an almost upright stem. (*Don's Mill.*) A sub-evergreen twining shrub. New York to Carolina, in dry stony woods. Stems 6 ft. to 10 ft. Introduced in 1656. Flowers scarlet; from May till August. Fruit reddish yellow; ripe in September.

*Varieties.*

977. L. s. màjor.

♃ *L. s.* 2 *màjor* Ait. Curt. Bot. Mag. 1781. (Schmidt Baum. t. 104.; and our *fig.* 977.) — Leaves roundish, and flowers very large, and of a brilliant scarlet.

♃ *L. s.* 3 *mìnor* Ait. Sims Bot. Mag. 1753. (Ker Bot. Reg. t. 556.; and our *fig.* 978.) L. connàta *Meerb. Icon.* t. 11.? — Leaves oblong, acute at both ends; upper ones obtuse, perfoliate. Flowers small, and scarlet both outside and inside.

978. L. s. mìnor.

♃ *L. s.* 4 *Brównii Gordon.* — Flowers larger and brighter than those of the species. A very desirable variety.

The fine scarlet flowers of this species, and the length of time during which they are produced, render it a very desirable one; but it is somewhat tender, and rather capricious in regard to situation. It will not thrive in clayey or wet soil; neither in the smoke of cities, nor in a confined situation. It grows well in sand, but still better in sandy peat.

♃ 12. L. CILIO'SA *Poir.* The ciliated-*leaved* Honeysuckle.

*Identification.* Poir. Suppl., 5. p. 612.; Dec. Prod., 4. p. 332.; Don's Mill., 3. p. 446.
*Synonymes.* Caprifòlium ciliòsum *Pursh Fl. Amer. Sept.* 1. p. 160.; L. ciliàta *Dietr. Lex. Suppl.* 4. p. 263.
*Engraving.* Our *fig.* 979. from a specimen in the Lambertian herbarium.

*Spec. Char., &c.* Upper part of the branches hairy on one side. Leaves coriaceous, reticulated, ovate, on short petioles, glaucous beneath, and ciliated on the margins; upper ones connately perfoliate. Spikes composed of approximate verticillate heads of nearly sessile flowers. Tube of corolla hairy, ventricose in the middle; limb nearly equal. Peduncles beset with glandular hairs. (*Don's Mill.*) A deciduous twining shrub. North America, on the banks of the Kooskoosky. Stem 6 ft. to 12 ft. Introduced in 1825. Flowers deep yellow; July and August. Fruit ?.

979. L. ciliòsa.

♃ 13. L. OCCIDENTA'LIS *Hook.* The Western Honeysuckle.

*Identification.* Hook Fl. Bor. Amer., 1. p. 282.; Don's Mill., 3. p. 446.
*Synonymes.* Caprifòlium occidentàle *Lindl. Bot. Reg.* t. 1457.; Caprifòlium ciliòsum *Douglas MSS.*
*Engravings* Bot. Reg., t. 1457.; and our *fig.* 980.

*Spec. Char., &c.* Leaves oval, almost sessile, glabrous, ciliated, glaucous

980. L. occidentàlis.

beneath; upper ones connately perfoliate. Flowers disposed in verticillate heads. Corolla glabrous, with an elongated tube, which is gibbous above the base; the limb nearly equal. Stamens almost enclosed. (*Don's Mill.*) Branches and peduncles glabrous. A deciduous twining shrub. Fort Vancouver, on the Columbia. Stems 6 ft. to 12 ft. Introduced in 1824. Flowers large, orange red; June, July, and August. Fruit ?.

A great acquisition to our gardens; quite different from L. pubéscens, L. parviflòra, and L. Douglàsii; and, if the presence or absence of hairs in the corolla are to be depended on, it is also different from L. ciliòsa, which inhabits nearly the same country

981. L. pilòsa.

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L. *pilòsa* Willd., Dec. Prod. iv. p. 233., Caprifòlium villòsum *H. B. et Kunth Nov. Gen. Amer.* iii. p. 427. t. 298. (and our *fig.* 981.), is a native of New Spain, in cold places, with purple flowers, not yet introduced.

## § ii. *Xylósteum* Dec.

*Identification.* Dec. Prod., 4. p. 333.; Don's Mill., 3. p. 446.
*Synonymes.* Xylósteon *Juss. Gen.* 212.; Lonícera Rœm. et Schult. Syst. 5. p. 19.; Xylósteon and Chamæcérasus *Tourn. Inst.* p. 609.; Xylósteum and *Isika* Adans. Fam. 2. p. 501.; Coboœ'a Neck. Elem. No. 219.; the Fly Honeysuckle; Hackenkirsche, *Ger.*; Hondsbeziën or Hondskarsen, *Dutch.*
*Derivation.* From *xylon*, wood, and *osteon*, a bone; the wood of L. Xylósteum being as hard as bone.

*Sect. Char., &c.* Pedicels axillary, 2-flowered, bibracteate at the apex. Berries twin, distinct, or joined together more or less; 3-celled in the young state; rarely 2-celled in the adult state. The limb of the calyx is generally deciduous, therefore the fruit is usually not crowned. (*Don's Mill.*) Climbing or erect shrubs, deciduous, with leaves never connate. Of the easiest culture, and extremely hardy.

A. *Ovaries and Berries altogether distinct. Stems twining. Flowers irregular.*—Nintoòa *Dec. Prod.* iv. p. 33.

*Derivation.* *Nintoo*, or *Sintoo*, is the name of L. japónica in China.

### ⅜ 14. L. CONFU'SA *Dec.* The confused Honeysuckle.

*Identification.* Dec. Prod., 4. p. 333.; Don's Mill., 3. p. 446.
*Synonymes.* *Nintoòa* confùsa *Swt. Hort. Brit.* ed. 2.; Lonícera japónica *Andr. Bot. Rep.* t. 583.; Nintoo, Sintoo, *Kæmpf. Amœn.* 5. p. 785.; Caprifòlium japónicum *Lond. Hort. Brit.* 1st ed.
*Engravings.* Andr. Bot. Rep., t. 583.; Bot. Reg., t. 70.; and our *fig.* 982.

*Spec. Char., &c.* Branches twining, pubescent. Leaves ovate, acute, rounded at the base, downy on both surfaces, as well as the peduncles. Peduncles axillary, longer than the petioles, 2-flowered, opposite, disposed in something like a thyrse at the tops of the branches. Calycine segments ovate, and, as well as the corollas, pubescent. The flowers are snow white at first, but gradually change to a golden yellow colour; hence it is called Suikadsara and Kinginqua, that is gold and silver flowers, by the Japanese. Corolla about an inch long, bilabiate. (*Don's Mill.*) A deciduous twining shrub. Japan, China, and the Himalayas. Stem 10 ft. to

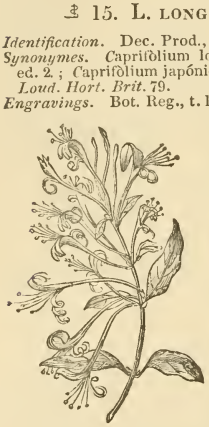
982. L. confùsa.

15 ft. Introduced in 1805. Flowers silvery white, changing to gold colour, June and July. Fruit?.

It is somewhat tender; nevertheless, it will grow and flower freely against an open wall in the neighbourhood of London; and the extraordinary fragrance of its flowers, which are produced in the greatest abundance, well entitles it to a place in every collection.

### ♃ 15. L. LONGIFLO'RA *Dec.* The long-flowered Honeysuckle.

*Identification.* Dec. Prod., 4. p. 333.; Don's Mill., 3. p. 447.
*Synonymes.* Caprifòlium longiflòrum *Sabine*; *Nintoòa* longiflòra *Swt. Hort. Brit.* ed. 2.; Caprifòlium japónicum *D. Don Prod. Fl. Nep.* 140.; Cuprifòlium nepalénse *Loud. Hort. Brit.* 79.
*Engravings.* Bot. Reg., t. 1232.; and our *figs.* 983. and 984.


983. L. longiflòra.

*Spec. Char., &c.* Glabrous in every part. Branches twining. Leaves petiolate, oblong-lanceolate, shining above, and pale beneath. Peduncles short, 2-flowered, about the length of the petioles. Tube of corolla very long and filiform; limb bilabiate. Flowers several inches long, at first snow-white, but finally changing to a golden yellow colour. (*Don's Mill.*) A deciduous twining shrub. China and Nepal. Stem 10 ft. to 15 ft. Introduced in 1826. Flowers snow white, changing to gold colour; July to September. Fruit?.

A very showy species, but it is somewhat tender in British gardens.

984. L. longiflòra.

### ♃ 16. L. JAPO'NICA *Thunb.* The Japan Honeysuckle.

*Identification.* Thunb. Fl. Jap., p. 89.; Don's Mill., 3. p. 447.
*Synonymes.* *Nintoòa* japónica *Swt. Hort. Brit.* ed. 2.; L. chinénsis *Hort. Kew.*; L. flexuòsa *Lodd. Bot. Cab.* 1037.; L. glabràta *Roxb.*; Caprifòlium chinénse *Loud. Hort. Brit.*; *C.* flexuòsum *Hort.*
*Engravings.* Dend. Brit., t. 117.; Bot. Cab., t. 1037.; Bot. Reg. t. 712.; and our *figs.* 985. and 986.

985. L. japónica.

*Spec. Char., &c.* Stems twining, flexuous, hairy. Branchlets opposite, very hairy, bearing 2 leaves and 2 sessile flowers at the base of each. Leaves about an inch long, petiolate, ovate, acutish, villous, pale beneath; uppermost ones the smallest. Corolla tubular, irregular, about an inch long, red and villous on the outside, and white inside, sweet-scented, equal in length to the stamens. (*Don's Mill.*) A twining shrub. China, Japan, and the Himalayas. Stems 15 ft. to 30 ft. Introduced in 1806. Flowers yellow and red; July to September.

986. L. japónica.

Perhaps the most valuable species of the genus, next to the indigenous one. It is nearly evergreen, apparently as hardy as the common woodbine, and of far more robust habit of growth; and, probably, a much longer-lived plant. Its flowers, which are produced for several months together, are exceedingly fragrant; and, by pruning and watering, it may be kept in flower in the open garden from April to November, and in a conservatory throughout the year. No garden whatever, whether large or small, should be without this species. Intending purchasers of this species will find that plants in pots are much to be preferred, though they are one half dearer; because, if they

are turned out into a large mass of prepared light rich soil, and placed against a wall, the ball being broken, and the roots spread carefully out in every direction, the shoots will cover several square yards of wall the first summer, and flower abundantly.

987. L. longifòlia.

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*L. longifòlia* Hort. and our *fig.* 987., of which there are plants in the London gardens, probably belongs to this section. The plants are apparently only half-hardy. Fruit blue.

B. *Berries distinct, or usually connate together at the Base, and diverging at the Tip. Corolla hardly gibbous at the Base, or equal. Erect deciduous shrubs.* — *Chamæcérasi* Dec.

*Derivation.* The name signifies a kind of false cherry; the fruit of some of the species resemble cherries. (*Dec. Prod.* iv. p. 335.)

### 17. L. TATA'RICA *Lm.* The Tartarian Honeysuckle.

*Identification.* Lin. Sp., 1. p. 247.; Dec. Prod., 4. p. 335.; Don's Mill., 3. p. 448.
*Synonymes.* Xylósteum cordàtum *Mœnch Meth.* p. 502.; X. tatáricum *Dum. Cours.*
*Engravings.* Pall. Fl. Ross., t. 36.; Jacq. Icon., t. 37.; Bot. Reg., t. 31.; and our *figs.* 988 and 989.

988. L. tatárica.

*Spec. Char., &c.* Quite glabrous, erect. Leaves cordate-ovate, hardly acute. Peduncles shorter than the leaves. Berries distinct when young, and nearly globose, but at length connate at the base. Flowers rose-coloured, short, somewhat gibbous at the base. Fruit black, with one of the berries usually abortive. Bracteas 2, linear-setaceous. Peduncles 2-flowered. (*Don's Mill.*) An upright shrub. Tartary. Height 4 ft. to 6 ft. Introduced in 1752. Flowers purplish; April and May. Berry bright red; ripe in August.

989. L. tatárica.

*Varieties.*

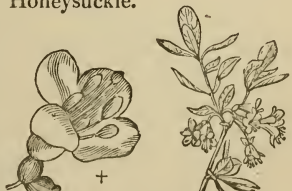
- *L. t.* 2 *albiflòra* Dec. Prod. iii. p. 335. L. pyrenàica *Willd. Baumz.*, p. 181. — Flowers and fruit white.
- *L. t.* 3 *rubriflòra* Dec. l. c. L. grandiflòrum *Lodd. Cat.*; L. sibírica *Hortul. ex Pers. Ench.* — Flowers and fruit red.
- *L. t.* 4 *lùtea* Lodd. Cat. has yellowish flowers and yellow fruit.
- *L. t.* 5 *latifòlia* Lodd. Cat. has broad leaves.

This is one of the most hardy of European shrubs, and one of the few which grow in the open gardens of Petersburg and Stockholm, without protection during winter. In British gardens, the plant is very common, and it is valued for its early leafing and flowering. It will grow in any soil, and almost in any situation, and is readily propagated by cuttings.

### 18. L. (T.) NI'GRA *L.* The black-*fruited* Honeysuckle.

*Identification.* Lin. Sp., 247.; Dec. Prod., 4. p. 335.; Don's Mill., 3. p. 449.
*Synonymes.* Caprifòlium nìgra *Lam. Fl. Fr.* 3. p. 368.; Chamæcérasus nigra *Delarb. Fl. Auv.* ed. 2. p. 130.; Ciliegia salvatica, *Ital.*
*Engravings.* Jacq. Aust., t. 314.; Schmidt Baum., t. 110.; Gesn, fasc. 37. t. 8. f. 48.

*Spec Char., &c.* Erect. Leaves oval-oblong or elliptic, on short petioles, rather villous when young, but nearly glabrous in the adult state. Peduncles 2-flowered, elongated,



990. L. (t.) n. campaniflòra. 991.

shorter than the leaves. Corolla reddish, and pubescent on the outside, but whitish on the inside. Bracteas 4, under the ovaries; the two outer ones lanceolate, and the inner quadrifid. Berries black, globose, joined together at the side. (*Don's Mill.*) An erect shrub. Middle Europe, in subalpine woods, as in France, Switzerland, Austria, Silesia, Piedmont, &c. Height 3 ft. to 4 ft. Introduced in 1597. Flowers whitish; March to May. Fruit black; ripe in August.

*Variety.*

L. (*t.*) *n.* 2 *campaniflòra;* Xylósteum campaniflòrum *Lodd. Cab.* t. 1361., and our *figs.* 990, 991.; has the flowers bell-shaped.

19. L. (T.) CILIA`TA *Mühl.* The ciliated-*leaved* Honeysuckle.

*Identification.* Mühl. Cat., p. 22.; Dec. Prod., 4. p. 335.; Don's Mill., 3. p. 448.
*Synonymes.* Xylósteum ciliàtum *Pursh Sept* 1. p. 161.; L. tatárica *Michx. Fl. Amer.* 1. p. 166. but not of Lin.; L. canadénsis *Rœm. et Schult. Syst.* 5. p. 260.
*Engraving.* Our *fig.* 992. from a living specimen.

*Spec. Char., &c.* Erect. Leaves ovate or oblong, cordate, thin, ciliated, villous beneath in the young state. Peduncles elongated. Bracteas 2, ovate, three times shorter than the ovaries, which are distinct. Corolla bluntly spurred at the base; with short, nearly equal lobes. Berries distinct, red, divaricate. Flowers white, with a tinge of red or yellow; tube ventricose above; limb with short acute sègments; style protruded. (*Don's Mill.*) An erect shrub. Canada to Virginia, and throughout Canada, on mountains among rocks, in rich soils. Height 4 ft. to 6 ft. Introduced in 1824. Flowers reddish or yellowish white; June, July.

992. L (t.) ciliàta.

20. L. PYRENA`ICA *L.* The Pyrenean Honeysuckle.

*Identification.* Lin. Sp., p. 248.; Dec. Prod., 4 p. 335.; Don's Mill., 3. p. 448.
*Synonymes.* Caprifòlium pyrenàicum *Lam. Fl. Fr.* 3. p. 362.; Xylósteum pyrenàicum *Tourn. Inst* 609.
*Engraving.* Our *fig* 993. from a specimen in the British Museum.

993. L. pyrenàica.

*Spec. Char., &c.* Glabrous, erect. Leaves obovate-lanceolate, acute, glaucous beneath. Peduncles 2-flowered, shorter than the leaves. Bracteas oblong-linear, foliaceous. Flowers almost regular. Berries globose, distinct. Corolla white, twice the size of that of L. Xylósteum, funnel-shaped: limb 5-cleft, flat; with equal, ovate, obtuse segments. (*Don's Mill.*) An erect shrub. Pyrenees, on calcareous rocks, in exposed situations. Height 4 ft. to 5 ft. Introduced in 1739. Flowers white; May. Berries white.

21. L. PUNI´CEA *Sims.* The crimson-*flowered* Honeysuckle.

*Identification.* Sims Bot. Mag., t. 2469.; Dec. Prod., 4. p. 335.; Don's Mill., 3. p. 448.
*Synonyme.* Symphoricárpos puníceus *Swt.*
*Engravings.* Bot Mag., t. 2469.; and our *fig.* 994.

*Spec. Char., &c.* Erect. Leaves ovate, subcordate at the base, of the same colour on both surfaces. Peduncles axillary, and almost terminal, 2-flowered, shorter than the leaves. Tube of corolla rather gibbous at the base; segments of corolla nearly equal, irregularly arranged, 3 one way and 2 another. Berries distinct?. Leaves sometimes three in a whorl on the young shoots. (*Don's Mill.*) An erect shrub. Native country unknown. Height 2 ft.

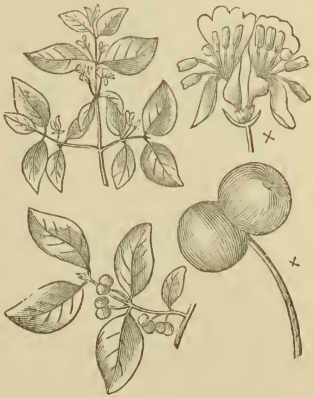
994. L. punícea.

to 4 ft. Cultivated in 1822. Flowers deep red, scarlet, or crimson; April and May. Fruit ?.

22. L. XYLO'STEUM *L.* The bony-wooded, *or upright, Fly* Honeysuckle.

*Identification.* Lin. Sp., 248.; Dec. Prod., 4. p. 335.; Don's Mill., 3. p. 448.
*Synonymes.* Caprifòlium dumetòrum *Lam. Fl. Fr.* 3. p. 367.; Xylósteum dumetòrum *Mœnch Meth.* p. 502.; Gisilòstio, *Ital.*
*Engravings.* Eng. Bot., t. 916.; Fl. Græc., t. 223.; and our *fig.* 995.

*Spec. Char., &c.* Erect, downy. Leaves ovate, acute, petiolate, soft. Peduncles 2-flowered, shorter than the leaves. Bracteas hairy, double; the two outer ones lanceolate, spreading; inner a small concave scale under each germ. Berries oval, distinct, 1-celled, 6-seeded. Flowers small, cream-coloured, downy. Calyx of 5 obtuse lobes. Berries scarlet. (*Don's Mill.*) An upright shrub. Europe, to Caucasus, in thickets, hedges, and rocky places, and by the sides of woods. Height 8 ft. to 10 ft. Cultivated in 1596. Flowers cream-coloured; July. Fruit scarlet; ripe in September. Naked young wood greyish white.


995. L. Xylósteum

*Varieties.*

- *L. X.* 2 *leucocárpum* Dec. Prod. iv. p. 335. has white berries.
- *L. X.* 3 *xanthocárpum* Dec. l. c. has the berries yellow.
- *L. X.* 4 *melanocárpum* Dec. l. c. has black berries.

Linnæus says that it makes excellent hedges in a dry soil; that the clear parts between the joints of the shoots are used in Sweden for tobacco-pipes; and that the wood, being extremely hard, makes teeth for rakes, &c., and yields only in beauty to that of L. tatárica for walking-sticks. It is one of the oldest and hardiest inhabitants of British shrubberies. In the English garden, or rather park, at Munich, it is planted in masses and groups, along with other masses and groups of *C*órnus álba, *S*àlix vitellìna, and *V*ibúrnum *O*'pulus; and, in the winter time, the whitish-grey bark of its shoots contrasts finely with the red, yellow, or brown, bark of the shrubs mentioned.

23. L. HI'SPIDA *Pall.* The hispid Honeysuckle.

*Identification.* Pall. ex Willd. MSS.; Led. Flor. Ross. Alt. III., t. 212.; Don's Mill., 3. p. 449.
*Engravings.* Led. l. c.; and our *fig.* 996.

*Spec. Char., &c.* Branches hispid. Leaves ovate, ciliated, petiolate, glabrous on both surfaces. Peduncles 2-flowered. Bracteas ovate-elliptic, exceeding the berries. (*Don's Mill.*) An upright shrub. Siberia, on the Altaian Mountains. Height 2 ft. to 3 ft. Introduced ?. Flowers greenish white, pendulous; May and June. Berries distinct, purple; ripe in August.

Branches opposite, glabrous or bristly, brownish. Leaves $1\frac{1}{2}$ or 2 inches long, and 1 in. broad, glabrous on both surfaces, cordate at the base.

996. L. hispida.

24. L. FLEXUO'SA *Thunb.* The flexible-*stemmed* Honeysuckle.

*Identification.* Thunb. in Lin. Trans., 2. p. 330., but not of Lodd., nor Ker; Don's Mill., 3. p 449.
*Synonymes.* L. nigra *Thunb. Fl. Jap.* p. 89., but not of Lin.; L. brachýpoda *Dec. Prod.* 4. p. 335.

*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* Erect, branched. Branches very villous at the apex. Leaves ovate-oblong, acute, on short petioles, glabrous; petioles villous; nerves of leaves puberulous. Flowers axillary, few, almost sessile. Berries globose, glabrous. Stems flexuous. Leaves about an inch long; upper ones the smallest. Peduncles hardly a line long. Berries distinct, ovate, acuminated, black. (*Don's Mill.*) An erect deciduous shrub. Japan. Height 4 ft. to 5 ft. Introduced in 1806. Flowers ?; June and July. Berries black; ripe ?.

C. *Berries either distinct or joined together. Corolla very gibbous at the Base. Erect bushy Shrubs.—Cuphánthæ* Dec.

*Derivation.* From *kuphos*, gibbous, and *anthos*, a flower; in reference to the flower being gibbous on one side at the base.

25. L. INVOLUCRA'TA *Banks.* The involucrated Honeysuckle.

*Identification.* Banks Herb. ex Spreng. Syst., 1. p. 759.; Dec. Prod., 4. p. 336.; Don's Mill., 3 p. 449.
*Synonyme.* Xylósteum involucràtum *Richards.* in *Frank. First Journ.* ed. 1. append. p. 6.
*Engravings.* Our *figs.* 997, 998, 999.

997, 998, 999. L. involucràta.

*Spec. Char., &c.* Erect. Branches acutely tetragonal. Leaves ovate or oval, petiolate, membranous, beset with appressed hairs beneath. Peduncles axillary, 2—3-flowered. Bracteas 4; two outer ovate, two inner broad, obcordate, at length widening, clothed with glandular pubescence. Corolla pubescent, gibbous at the base on the outside; yellowish, tinged with red. Style exserted. (*Don's Mill.*) An erect shrub. North-west America, between lat. 54° and 64° (but probably confined to the vicinity of the Saskatchawan); thence to the Rocky Mountains. Height 2 ft. to 3 ft. Introduced in 1824. Flowers yellowish, tinged with red; May. Fruit ?.

26. L. LEDEBOU'RII Eschsch. Ledebour's Honeysuckle.

*Identification.* Eschsch. Mém. Act. Soc. Petersb., 10. p. 284.; Hook. et Arn. in Beech Voy. pt. p. 145.; Don's Mill., 3. p. 449.
*Engraving.* Our *fig.* 1000. from a living specimen.

*Spec. Char., &c.* Erect. Branches elongated, acutely tetragonal. Leaves ovate or oblong, somewhat acuminated, stiff, pubescent, tomentose on the nerves. Peduncles axillary, 2—3-flowered. Bracteas 4; 2 outer ones ovate; 2 inner broad obcordate, pubescent, at length increasing in size. Corollas gibbous at the base on the outside. Berries distinct. (*Don's Mill.*) An erect deciduous shrub. California. Height 2 ft. to 3 ft. Introduced in 1838. Flowers yellow, tinged with red; June and July. Berries dark purple; ripe in September.

Very nearly allied to L. involucràta.

1000. L. Ledebourii.

D. *Berries two on each Peduncle, joined together in one, which is bi-umbilicate at the Apex. Erect, bushy, deciduous Shrubs.* — Isìkæ *Adans.*

***Derivation.*** A name, the origin of which is unknown, employed by Adanson to designate this division of the genus.

### 27. L. ALPI'GENA *H.* The alpine Honeysuckle.

1001, 1002. L. alpígena.

*Identification.* Lin. Sp., 248.; Dec. Prod., 4. p. 336.; Don's Mill., 3. p. 449.
*Synonymes.* Caprifòlium alpinum *Lam. Fl. Fr.*; Caprifòlium alpígenum *Gærtn. Fruct.* 1. p. 136. *Isìka* alpígena *Börck.*; *Isìka* lùcida *Mœnch*; Xylósteum alpígenum *Lodd. Cat.*; Chamæcérasus alpígena *Delarb.*; Cherry Woodbine; Heekenkirsche, *Ger.*; Chamæceraso, *Ital.*
*Engravings.* Jacq. Fl. Aust., t. 274.; N. Du Ham., 1. t. 16.; and our *figs.* 1001. and 1002.

*Spec. Char., &c.* Erect. Leaves oval-lanceolate or elliptic, acute, glabrous or pubescent, on very short petioles, rather ciliated. Peduncles 2-flowered, shorter than the leaves. Corolla gibbous at the base, and greenish yellow tinged with red or purple. Berries red, and of the size and appearance of those of a cherry; whence it is called cherry woodbine by Johnson. Leaves large. (*Don's Mill.*) A large, upright, deciduous shrub. Middle and South of Europe, in sub-alpine places and mountains. Height 5 ft. to 8 ft. Introduced in 1596. Flowers greenish yellow, tinged with red; April and May. Fruit red; ripe in August.

*Variety.*

*L. a.* 2 *sibírica* Dec. Prod. iv. p. 336. L. sibírica *Vest* in *Rœm. et Schult. Syst.* 5. p. 259. — Lower leaves rather cordate. Peduncles thickened a little under the flowers. Like most other varieties of trees and shrubs, natives of the West of Europe, and also indigenous to Siberia, coming into leaf and flower a week, or more, earlier than the species.

### 28. L. (A.) MICROPHY'LLA *Willd.* The small-leaved Honeysuckle.

1003. L. (a) microphylla.

*Identification.* Dec. Prod., 4. p. 336.; Don's Mill., 3. p. 450.
*Synonymes.* L. alpígena *Sievers*; L. montàna, and L. mexicàna *Hort.*
*Engravings.* Led. Fl. Ros. Alt. Ill., t. 213.; and our *fig.* 1003.

*Spec. Char., &c.* Leaves elliptic, acute at both ends, glaucous beneath, rather villous on both surfaces, and sometimes rounded at the base. Peduncles 2-flowered, and shorter than the leaves. Corollas greenish yellow. Berries joined, of a reddish orange colour. The epidermis falls from the branches. (*Don's Mill.*) An erect shrub. Eastern Siberia. Height 3 ft. to 4 ft. Introduced in 1818. Flowers greenish yellow; April and May. Fruit reddish orange; ripe in August.

### 29. L. OBLONGIFO'LIA *Hook.* The oblong-leaved Honeysuckle.

1004. L. oblongifolia.

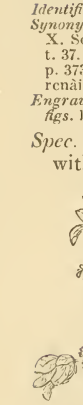
*Identification.* Hook. Fl. Bor. Amer., 1. p. 284. t. 100.; Don's Mill., 3. p. 450.
*Synonyme.* Xylósteum oblongifòlium *Goldie* in *Edin. Phil. Journ.* 6. p 232
*Engravings.* Hook. Fl. Bor. Amer., 1. t. 100.; and our *fig.* 1004.

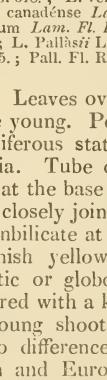
*Spec. Char., &c.* Erect. Leaves oblong or oval, clothed with velvety pubescence beneath. Peduncles elongated, erect. Bracteas obsolete. Tube of corolla hairy, gibbous at the base on one side. Limb unequal, deeply 2-lipped; the upper lip 4-toothed, and the lower one nearly entire. Berries joined in one, which is bi-umbilicate at the top, bluish black in the dried state, and about the size of a pea. (*Don's Mill.*) An erect shrub. Island of Montreal, in the St. Lawrence, about Montreal; Lake Winnipeg; and the western parts of the state of New York. Height 3 ft. to 4 ft. Introduced in 1823. Flowers yellow, April and May. Fruit bluish black; ripe in August. Horticultural Society's Garden.

### 30. L. CÆRU'LEA *L.* The blue-*berried* Honeysuckle.

*Identification.* Lin. Sp., 349.; Dec. Prod., 4. p. 337.; Don's Mill., 3. p. 450.
*Synonymes.* L. villòsa *Mühl. Cat.* p. 22.; Xylósteon villòsum *Michx. Fl. Bor. Amer.* 1. p. 106.; X. Solònis Eaton Man. Bot. p. 518.; L. velutina *Dec. Prod.* 4. p. 337.; L. altàica *Pall Fl. Ross.* t. 37.; Xylósteon cærùleum canadénse *Lam. Dict.* 1. p. 731.; X. canadénse *Du Ham. Arb.* 2. p. 373.; Caprifòlium cærùleum *Lam. Fl. Fr.*, Chamæcérasus cærùlea *Delarb. Fl. Au.*; L. pyrenàica *Pall. Fl. Ross.* p. 58; L. Pallàsii Led. Fl. Ross. Alt. Ill. t. 131. Ciliegia alpina, *Ital.*
*Engravings.* Bot. Mag., t. 1965.; Pall. Fl. Ross., t. 37.; Led. Fl. Ross. Alt. Ill., t. 131.; and our *figs.* 1005. and 1006.

*Spec. Char., &c.* Erect. Leaves oval-oblong, ciliated, stiffish, densely clothed with pubescence while young. Peduncles short, 2-flowered, reflexed in the fructiferous state. Bracteas 2, subulate, longer than the ovaria. Tube of corolla glabrous, short, gibbous on one side at the base; lobes of limb short, nearly equal. Berries closely joined in one, which is bi-umbilicate at the apex. Flowers greenish yellow, tubular. Berries elliptic or globose, dark blue, and covered with a kind of bloom. Bark of young shoots purplish. There is no difference between the American and European plants of this species. (*Don's Mill.*) An erect shrub. Europe, and throughout the woody country of British North America, as far as lat. 66°; and of Siberia and Kamtschatka. Height 3 ft. to 5 ft. Introduced in 1629. Flowers greenish yellow; March and April. Fruit dark blue; ripe in August.

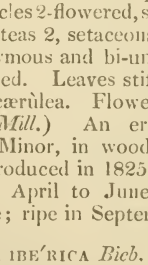

1005. L. cærùlea.


1006. L. cærùlea.

### 31. L. ORIENTA'LIS *Lam.* The Oriental Honeysuckle.

*Identification.* Lam. Dict., 1. p. 731.; Dec. Prod., 4. p. 337.; Don's Mill., 3. p. 450.
*Synonymes.* L. caucásica *Pall. Fl. Ross.* 1. p. 57.; L. cærùlea *Güld. Itin.* 1. p. 423., Chamæcérasus orientàlis laurifòlia *Tourn. Cor.* p. 42.
*Engraving.* Our *fig.* 1007 from Tournefort's specimen in the British Museum.

*Spec. Char., &c.* Erect. Leaves on very shor petioles, ovate-lanceolate, acute, quite entire, smoothish. Peduncles 2-flowered, shorter than the leaves. Bracteas 2, setaceous. Berries joined in one, didymous and bi-umbilicate at the apex, 10-seeded. Leaves stiffish, veiny, larger than in L. cærùlea. Flowers greenish yellow. (*Don's Mill.*) An erect shrub. Iberia and Asia Minor, in woods. Height 3 ft. to 5 ft. Introduced in 1825. Flowers greenish yellow; April to June. Berries black or dark blue; ripe in September.


1007. L. orientàlis.

### 32. L. IBE'RICA *Bieb.* The Georgian Honeysuckle.

*Identification.* Bieb. Fl. Taur., and Suppl., 395.; Dec. Prod., 4. p. 337.; Don's Mill., 3. p. 450.
*Synonyme* Xylósteon ibéricum *Bieb. Cent. Pl. Rar.* 1. t. 13. *ex Suppl.*, and *Lodd. Cat.* ed. 1836.
*Engravings.* Bieb. Cent. Fl. rar., 1. t. 13., ex Suppl.; and *figs.* 1008.'1009. from living specimens.

*Spec. Char., &c.* Erect. Leaves petiolate, cordate, roundish, tomentose or

1008. L. ibérica.

pubescent. Peduncles 2-flowered, shorter than the leaves. Bracteas oblong, ciliated. Berries joined together to the middle, globose. Corollas lucid, of the form of those of L. alpígena. Ovarium tomentose. Leaves like those of Cotoneáster vulgàris (*Don's Mill.*) An erect shrub. Georgia, about Teflis. Height 3 ft. to 4 ft. Introduced in 1824. Flowers greenish yellow; April and May. Fruit blood-coloured, sometimes pointed as in *fig.* 1008.; ripe in August.

A very neat little bush, which makes very good garden hedges.

1009. L. ibérica.

## Genus V.

SYMPHORICA'RPOS *Dill.* **The St. Peter's Wort.** *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Dill. Elth., p. 371.; Dec. Prod., 4. p. 338.; Don's Mill., 3. p. 451.
*Synonymes.* Symphoricárpa *Neck. Elem.* p. 220.; Symphòria *Pers. Ench.* 1. p. 214.; Anisánthus *Willd. Rel.*; Lonicera sp. *Lin.*
*Derivation.* From *sumphoreō*, to accumulate, and *karpos*, fruit; species bearing the fruit in groups. How it obtained the name of St. Peter's Wort we have not been abie to ascertain.

*Gen. Char.* *Calyx* tube globose; limb small, 4—5-toothed. *Corolla* funnel-shaped, almost equally 4—5-lobed. *Stamens* 5, hardly exserted. *Stigmas* semiglobose. *Ovarium* adnate. *Berry* 4-celled. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, deciduous; oval, quite entire. *Flowers* on short peduncles, axillary or many together, bibracteate, small, white or rose-coloured, on short pedicels.—Shrubs erect, bushy, oppositely branched; natives of Europe and North America; of the easiest culture in common garden soil; and readily increased by suckers, which they throw up in abundance.

1. S. vulga'ris *Michx.* The common St. Peter's Wort.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 100.; Dec. Prod., 4. p. 339.; Don's Mill., 3. p. 451.
*Synonymes.* Lonicera Symphoricárpos *Lin. Sp.* 249.; S. parviflòra *Desf. Cat.*; Symphòria conglomeràta *Pers. Ench.* 1. p. 214.; Symphòria glomeràta *Pursh Sept.* p. 162.
*Engravings.* Schmidt Baum., t. 115.; and our *fig.* 1010.

*Spec. Char., &c.* Flowers disposed in axillary capitate clusters, composed of nearly sessile racemules. Corolla white. Berries red, size of hempseed; but, in America, according to Pursh, the flowers are small, red and yellow, and the berries purple. Branches brown, smooth. Leaves elliptic ovate, obtuse, glaucous, and pubescent beneath. The berries are numerous, and ripen in winter. (*Don's Mill.*) An erect bushy shrub. Virginia, Carolina, and Pennsylvania, in sandy dry fields. Height 3 ft. to 6 ft. Introduced in 1730. Flowers small, red and yellow; August and September. Fruit purple; ripe in December.

1010. Symphoricárpos vulgàris.

*Variety.*

*S. v.* 2 *fòliis variegàtis*, S. glomeràta fòliis variegàtis *Lodd. Cat.*, has the leaves finely variegated with green and yellow.

2. S. MONTA'NUS *Humb. et Bonp.* The Mountain St. Peter's Wort.

*Identification.* Humb. et Bonp. Nov. Gen. et Spec., 3. p. 332.; Dec. Prod., vol. 4. p. 339.
*Synonymes.* Symphòria montàna *Spreng. Syst. Veg.* 1. p. 757.; S. glaucéscens *Don's Mill.* 3. p. 452.
*Engravings.* Maund's Botanist, 1. t. 20.; and our *fig.* 1011.

*Spec. Char., &c.* Leaves ovate, acute, slightly mucronate, rounded at the base, pubescent beneath. Flowers axillary, mostly solitary. A dense erect subevergreen shrub. Mexico, on mountains, 7000 to 8000 ft. of elevation. Height 5 ft. to 6 ft. Introduced in 1829. Flowers pinkish; August to October. Fruit globose white; ripe in December.

A very desirable shrub, perfectly hardy, and almost evergreen. It commences flowering in August, and does not cease till it is checked by frost. Layers in common soil.

1011. S. montàna.

3. S. RACEMO'SUS *Michx.* The racemose-*flowered* St. Peter's Wort, *or Snowberry.*

*Identification.* Michx. Fl. Bor. Amer., 1. p. 107.; Dec. Prod., 4. p. 339.; Don's Mill., 3. p. 451.
*Synonymes.* Symphòria racemòsa *Pursh Sept.* 1. p. 162.; ?S. elongàta, and S. heterophýlla *Presl* in *Herb. Hænke*; S. leucocárpa *Hort.*
*Engravings.* Bot. Mag., t. 2211.; Lodd. Bot. Cab., t. 230.; and our *fig.* 1012.

*Spec. Char., &c.* Flowers disposed in nearly terminal, loose, interrupted racemes, which are often leafy. Corolla densely bearded inside. Style and stamens enclosed. Leaves glaucous beneath. Corolla rose-coloured. Berries large, white. (*Don's Mill.*) A bushy shrub, with numerous ascending shoots. North America, on mountains, near Lake Mistassins, on the banks of the Missouri, and various other places. Height 4 ft. to 6 ft. Introduced in 1817. Flowers rose-coloured; July to September. Fruit large, white; ripening in October, and remaining on great part of the winter.

1012. S. racemòsus.

The S. elongàtus and S. heterophýllus *Presl* in *Herb. Hænke*, which were collected about Nootka Sound, do not differ from this species, in which the lower leaves are sometimes deeply sinuated. In small gardens, this shrub is rather troublesome, from the numerous suckers it throws up from the roots; but, as its flowers are much sought after by bees, and its berries are excellent food for game; that habit, when it is planted for these purposes, is found rather advantageous than otherwise. For single specimens in small gardens, it might be desirable to graft it on Lonícera Xylósteum, or some allied species of suitable habit. So grafted, standard high, it would form a very elegant little tree.

4. S. OCCIDENTA'LIS *Richards.* The Western St. Peter's Wort.

*Identification.* Richards. and Frankl. 1st Journ., edit. 2., app. p. 6.; Hook. Fl. Bor Amer., 1. p. 285.
*Synonyme.* Wolf-berry, *Amer.*
*Engraving.* Our *fig.* 1013. from a specimen in Sir W. J. Hooker's herbarium.

*Spec. Char., &c.* Spikes dense, terminal and axillary, drooping. Corolla and seg-

1013. S. occidentàlis.

ments densely bearded inside. Style and stamens a little exserted. (*Don's Mill.*) A dense shrub, bearing a close resemblance to S. racemòsus. British North America, in the woody country between lat. 54° and 64°. Height 4 ft. to 6 ft. Introduced ?. Flowers pinkish ; July to September. Fruit white ; October, and remaining on during the winter.

Distinguished from S. racemòsus by the larger, less glaucous, more rigid, and denser foliage, and by the flowers being arranged in dense drooping spikes, longer than in S. racemòsus, and by the prominent style and stamens.

## Genus VI.

### LEYCESTE'RIA Wall. The Leycesteria. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Wall. in Roxb. Fl. Ind., 2. p. 181. ; Dec. Prod., 4. p. 338. ; Don's Mill., 3. p. 451.
*Derivation.* Named by Dr. Wallich after his friend *William Leycester*, formerly chief judge of the principal native court under the Bengal Presidency ; " who during a long series of years, and in various parts of Hindoostan, has pursued every branch of horticulture with a munificence, zeal, and success, which abundantly entitle him to that distinction."

*Gen. Char.* *Calyx* with an ovate tube, and an unequal, 5-parted, permanent limb. *Segments* unequal, small, linear, glandularly ciliated. *Corolla* funnel-shaped ; having the tube gibbous above the base, and the limb campanulate, and divided into 5 ovate nearly equal lobes. *Stamens* 5. *Stigma* capitate. *Berry* roundish, 5-celled. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, sub-evergreen ; ovate-lanceolate, acuminated, petiolate, smooth, entire, membranous, glaucous, with an obtuse subcordate base. *Petioles* pilose. *Flowers* white, with a tinge of purple ; disposed in whorls, forming short leafy drooping racemes, which terminate the branches and branchlets. *Bracteas* large, foliaceous, purplish, pubescent and ciliated, lanceolate, acuminated ; generally 6 under each whorl of flowers. *Berries* deep purple, approaching to black, as large as a common-sized gooseberry. Shrub large, rambling, with elongated fistular branches, which rise from scaly buds. Native of Nepal.

This genus appears to be intermediate between Caprifoliàceæ and Rubiàceæ ; but from the last it is distinguished by the want of stipules.

1014. Leycestèria formòsa.

1. L. FORMO'SA *Wall.* The beautiful Leycesteria.

*Identification.* Wall. in Roxb. Fl. Ind., 2. p. 182.; Dec. Prod., 4. p. 338. Don's Mill, 3. p. 451.
*Synonyme.* Hamèlia connàta *Puerari MSS.*
*Engravings.* Plant. As. Rar., 2. t. 120.; and our *fig.* 1014.

*Spec. Char., &c.* As in Gen. Char. A large, rambling, sub-evergreen shrub. Nepal, on mountains; between 6000 ft. and 8000 ft. high, among forests of pine and oak. Height in England, against a wall, 6 ft. to 8 ft. Introduced in 1824. Flowers white, with a tinge of purple; August to October. Fruit purple; ripe in October.

Trained against a wall, this shrub has proved quite hardy, but in our cloudy atmosphere it has rather disappointed expectation in the colour of its bracteas, which are much less brilliant than they appear to be in the Himalayas. Cuttings or seeds, which are ripened freely, in common soil.

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## ORDER XLI. *R*UBIA'CEÆ.

*ORD. CHAR. Calyx* with a variable limb. *Corolla* monopetalous, with a variable limb, but generally 4—5-lobed; æstivation twisted or valvate. *Stamens* equal in number to the segments of the corolla, and more or less adnate to its tube. *Anthers* introrse. *Ovarium* 2- or many-celled, crowned by the limb of the calyx. *Style* 1. *Stigmas* 2. *Fruit* baccate or capsular. *Cells* 1—2- or many-seeded. *Albumen* horny and fleshy. (*G. Don.*)

*Leaves* simple, opposite, or 3 in a whorl, stipulate, deciduous. *Stipules* short, distinct, or a little combined. *Flowers* on peduncles, naked, rising from the axils of the leaves, or from the tops of the branches; heads globose, in consequence of the flowers being sessile, and seated on a sessile piliferous receptacle.

This order includes a great number of genera; but there is only one of these that contains any ligneous species truly hardy in British gardens.

### GENUS I.

CEPHALA'NTHUS *L.* THE BUTTON-WOOD. *Lin. Syst.* Tetrándria Monogýnia.

*Identification.* Lin. Gen., No. 113.; Gærtn. Fruct., 2. t. 86. Lam. Ill., t. 59.; Juss. Mém. Mus., 6. p. 402.; Rich. Diss., with a fig.; Dec. Prod., 4. p. 538.; Don's Mill., 3. p. 610.; Lodd. Cat., ed. 1836.
*Synonymes.* Cephalante, *Fr.*; Knopflaum *Ger.*; Cefalanto, *Ital.*
*Derivation.* From *kephalē*, a head, and *anthos*, a flower; in allusion to the flowers being disposed in globular heads.

*Gen. Char. &c. Calyx* with an obversely pyramidal tube, and an angular 5-toothed limb. *Corolla* with a slender tube, and a 4-cleft limb; lobes erectish. *Stamens* 4, short, inserted in the upper part of the tube, hardly exserted. *Style* much exserted. *Stigma* capitate. *Fruit* inversely pyramidal, crowned by the limb of the calyx, 2—4-? celled, and separating into 2—4 parts; cells, or parts, 1-seeded, indehiscent, and sometimes empty by abortion. *Seeds* oblong, terminating in a little callous bladder. (*Don's Mill.*) —A shrub, with terete branches; native of North America.

*Leaves* and *Flowers* as in the order.

1. C. OCCIDENTA'LIS *L.* The Western Button-wood.

*Identification.* Lin. Sp., 138.; Dec. Prod., 4. p. 538.; Don's Mill., 3. p. 610.
*Synonymes.* C. oppositifolius *Mœnch Meth.* p. 487.; Swamp Globe Flower, *Amer.*
*Engravings.* Du Ham. Arb., 1. t. 54.; Schmidt Arb., 1. t. 45.; and our *figs.* 1015. and 1016.

*Spec. Char., &c.* Leaves opposite, or 3 in a whorl, ovate or oval, acuminated.

Peduncles much longer than the heads, usually by threes at the tops of the branches. Petioles reddish next the branches. Heads of flowers globular, size of a marble. Stipules deciduous. (*Don's*

1015.

Cephalánthus occidentàlis. 1016.

*Mill.*) A bushy shrub. Canada to Florida, in marshy places. Height 3 ft. to 6 ft. Introduced in 1735. Flowers yellowish white; July and August. Fruit brownish; ripe in October.

*Variety.*

♠ *C. o.* 2 *brachýpodus* Dec. Prod. iv. p. 539. — Leaves elliptic-oblong, 3 in a whorl, on short petioles. Petioles 3—4 lines long. There are varieties of this, with either glabrous or downy branches. North of Mexico, near Rio de la Trinidad and Bejar.

It will grow in common garden soil, but prefers peat kept moist; and is propagated chiefly by seeds, but will also grow by cuttings and layers. It is an interesting shrub, from its curious round heads of flowers, and from the lateness of the season at which these appear.

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## Order XLII. COMPO'SITÆ.

*Ord. Char.* *Calyx* limb membranous or wanting; or divided into bristles, paleæ, or hairs. *Corolla* 5-toothed or 5-lobed, tubular, ligulate, or bilabiate on the top of the ovarium. *Anthers* combined, rarely free. *Ovarium* 1-celled, 1-seeded. *Style* 1. *Stigmas* 2. *Fruit* an achenium, crowned by the limb of the calyx. *Albumen* none. Characterised by the cohesion of the anthers, and the arrangement of the flowers in involucrated heads on a common receptacle. (*G. Don.*)

*Leaves* simple, or compound, stipulate or exstipulate, deciduous or evergreen. *Flowers* grouped in heads; those in each head so disposed, and so environed by an involucre composed of bracteas that corresponds to a calyx, as to seem to constitute but one flower.

The genera that include hardy ligneous species are mostly natives of Europe and North America: they are all of the easiest propagation and culture in any common garden soil, and are thus contradistinguished: —

Stæheli'na Lessing. Flowers bisexual. Receptacle with chaffy projections.

Ba'ccharis *R. Br.* Flowers diœcious, all tubular. Receptacle naked. Pappus pilose.

Iva *L.* Flowers monœcious, all tubular. Receptacle flat paleaceous. Achenia naked, but horned.

Santoli'na *L.* Receptacle furnished with somewhat flower-clasping paleæ. Achenia naked.

Artemi'sia Cass. Receptacle chaffless. Achenia naked. Heads discoid.

*Sene'cio Lessing.* Receptacle naked, or alveolate. Styles penciled. Pappus pilose, caducous.

*Muti'sia* Cav. Receptacle naked. Achenia somewhat beaked. Pappus of many series, feathery.

With the exception of *Báccharis*, there is scarcely a plant belonging to the order Compósitæ which is truly ligneous, and at the same time hardy in British gardens, and sufficiently bulky for a general arboretum. Where an arboretum is planted on a lawn, and where it is not intended to cultivate the soil about the roots of the plants, there is not a single genus in this order, with the exception of that mentioned, which could with propriety be introduced. Even the common southernwood, if not planted in dug soil or on rockwork, would soon become stunted, and would ultimately die off. Nevertheless, in a technical enumeration of trees and shrubs, these species could not be omitted.

## Genus I.

### STÆHELI'NA Lessing. The Stæhelina. *Lin. Syst.* Syngenèsia Æquàlis.

*Identification.* Lessing Synops. Gen. Compos., p. 5.; Ait. Hort. Kew., ed. 2., vol. 4. p. 512.
*Synonyme.* Stæheline, *Fr.* and *Ger.*
*Derivation.* So named in honour of *John Henry Stæhelin*, and his son *Benedict*, Swiss botanists and physicians.

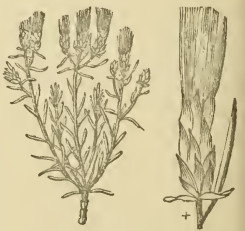
*Gen. Char., &c. Heads* homogamous, equal-flowered. *Involucrum* cylindrical, the scales imbricated and adpressed. *Receptacle* flat, paleaceous; the paleæ narrow, persistent, hardly concrete at the base. *Corolla* 5-cleft, regular. *Filament* glabrous. *Anthers* appendiculate at top, bisetose at the base; the tails more or less bearded. *Style* bearded on the thickened part. *Stigmas* concrete at base, and free at apex, obtuse. *Fruit* oblong, areolate at apex. *Pappus* in one series, the hairs combined at the base into 4 or 6 bundles. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, evergreen; linear, hoary or silky beneath *Flowers* in terminal spikes, usually naked. — Subshrubs, evergreen; South of Europe, of easy culture in dry soil, and propagated by cuttings or seeds.

1. S. du'bia *L.* The doubtful, *or Rosemary-leaved*, Stæhelina.

*Identification.* Lin. Sp., 1176.; Less. Syn. Gen. Compos., p. 5.; Willd. Sp. Pl., 3. p. 1783.
*Synonyme.* S. rosmarinifòlia *Cass.*, according to Less. Syn. Gen. Compos., p. 5.
*Engravings.* Ger. Prov., p. 190. t. 6.; Lam. Ill., 666. f. 4.; and our *fig.* 1017.

*Spec. Char., &c.* Leaves sessile, linear, finely toothed, tomentose beneath. Inner bracteas of the involucre lanceolate, elongate. (*Willd.*) An evergreen undershrub. South of Europe. Height 2 ft. to 3 ft. Cultivated in 1640. Flowers purple, fragrant; June and July.



1017. Stæhelina dùbia.

## Genus II.

### BA'CCHARIS *R. Br.* The Baccharis, *or* Ploughman's Spikenard. *Lin. Syst.* Syngenèsia Supérflua.

*Identification.* Less. Syn. Gen. Compos., p. 204.; Ait. Hort. Kew., ed. 2., vol. 5. p. 26.
*Synonymes.* Bacchante, *Fr.*; Baccharis, *Ger.*

*Derivation.* From *Bacchus*, wine; because of the vinous odour of its root. Pliny says the root smells of cinnamon: but as the ancients sometimes boiled down their wines, and mixed them with spices, these wines may have had an odour similar to that of the root of the baccharis.

*Gen. Char., &c. Heads* many-flowered, diœcious. *Corolla* homogamous, tubular. *Receptacle* naked, seldom subpaleaceous. *Involucrum* subhemispherical, or oblong, in many series, imbricated. *Corollas* of the male flowers 5-cleft, dilated at the throat; *anthers* exserted, tailless; *style* more or less abortive. *Corolla* of the female flowers filiform, subtruncate; *style* bifid, exserted; *anthers* wanting. *Achenia* generally furrowed, or ribbed. *Pappus* pilose, of the male in one series, of the female in one or many series. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; oblong lanceolate, notched, serrated, or entire. *Flowers* terminal.—Shrubs, of short duration; natives of North America; of common culture and propagation.

1. *B.* HALIMIFO'LIA *L.* The Sea-Purslane-leaved Baccharis, *or the Groundsel Tree.*

*Identification.* Lin. Sp., 1204.; Willd. Sp. Pl., 3. p. 1915.
*Synonyme.* Senècio arborèscens *Hort. Kew.*
*Engravings.* Schmidt Baum., t. 82.; Du Ham. Arb., t. 35.; and our *fig.* 1018.

*Spec. Char., &c.* Leaves obovate, crenately notched on the terminal portion. (*Willd.*) A large rambling shrub. Maryland to Florida, on the sea coast. Height 8 ft. to 10 ft. Introduced in 1683. Flowers white, with a tint of purple, and resembling those of the groundsel, but larger; September to November.

1018. *Bàccharis halimifòlia.*

Chiefly remarkable for the glaucous hue of its leaves, in consequence of the whole plant being covered with a whitish powder. Its general appearance accords with that of the genus *A'triplex*, and the shrubs of both families are, accordingly, well calculated for being grouped together. *Bàccharis halimifòlia* will grow in any common soil which is tolerably dry, attaining the height of 6 or 8 feet in 3 or 4 years; and forming a large, loose-headed, robust-looking bush, of from 10 ft. to 12 ft. in height, and 12 or 15 feet in diameter, in 10 years. Cuttings, in dry soil and an open situation.

2. *B.* (*H.*) ANGUSTIFO'LIA *Pursh.* The narrow-leaved Baccharis, *or Ploughman's Spikenard.*

*Identification.* Pursh Sept., 2. p. 523.
*Engraving.* Our *fig.* 1019. from a specimen in the Lambertian herbarium.

*Spec. Char., &c.* Leaves narrow, linear, entire. Panicle compound, many-flowered. Involucre small. (*Pursh.*) A subevergreen shrub, of less vigorous growth, and somewhat more tender, than the preceding species. Carolina to Florida, on the sea coast, and on the banks of the Mississippi. Height 3 ft. to 4 ft. Introduced in 1812. Flowers white; July to September.

1019. *B.* (*h.*) angustifòlia.

Neither the flowers nor the leaves of this or the preceding species can be said to be either beautiful or ornamental; partly because they, as well as the seeds, bear a strong general resemblance to the leaves, flowers, and seeds of the common groundsel, a weed of tiresome occurrence in gardens, and with which all our associations are the reverse of those of rarity or elegance. Add also that groundsel trees can hardly be considered as truly ligneous plants, for which reason we consider them wanting in that dignity of character which belongs to all plants truly woody.

## Genus III.

### *IVA* L. The Iva. *Lin Syst.* Syngenèsia Necessària.

*Identification.* Lin. Gen. Pl., 1429.; Ait. Hort. Kew., ed. 2., vol. 5. p 181.
*Derivation.* Uncertain. Perhaps from *Yua*, a name used by the elder botanists.

*Gen. Char., &c.* *Flowers* monœcious, male and female on the same head: female ones few on the same head, in a single series around the circumference, they are tubular or campanulate; the male flowers are numerous in the disk, they are tubular and 5-toothed. *Involucrum* usually 3—5-leaved, campanulate. *Scales* ovate, in one series; rarely imbricate, with 3 or 4 series of scales. *Receptacle* flat, beset with linear or linear spathulate paleæ. *Styles* on the female flowers subulate, exserted, rather hispid; those of the males shorter, and thickened at top. *Achenia* of the disk abortive, those of the ray a little compressed, naked, but furnished with horns. (*G. Don.*)

*Leaves* simple, opposite, exstipulate, deciduous; lanceolate, serrated. *Flowers* in terminal heads, solitary or three together, constituting a foliaceous terminal raceme.— Suffrutescent deciduous shrubs, with the habit of *Artemísia*, but readily distinguished by the monœcious flowers. Indigenous in North America, on the banks of rivers. There is only one shrubby species in British gardens.

1. *I.* frute'scens *L.* The shrubby Iva.

*Identification.* Lin. Amœn. Ac., 3. p. 25.; Willd. Sp. Pl., 3. p. 2387.; Pursh Sept., 2. p. 580.
*Synonymes.* *Agérato* affìnis peruviàna frutéscens *Pluk. Alm.* 12. t. 27. f. 1.; Bastard Jesuits' Bark Tree
*Engravings.* Pluk. Alm., 12. t. 27. f. 1.; and our *fig.* 1020.

*Spec. Char., &c.* Leaves lanceolate, deeply serrated, rough with dots. (*Willd.*) A suffruticose deciduous bush, of little or no beauty in the popular sense of that word. New England to Florida, on the sea coast. Height 3 ft. to 4 ft. Introduced in 1711. Flowers greenish white; August and September.

In sheltered dry situations it is tolerably hardy; but, when freely exposed in moist soil, it is apt to be killed to the ground in severe winters. Cuttings. The *Iva* frutéscens can, however, hardly be considered a truly ligneous plant.

1020. *I.* frutéscens.

## Genus IV.

### SANTOLI'NA *Tourn.* The Santolina, *or* *Lavender Cotton.* *Lin. Syst.* Syngenèsia Æquàlis.

*Identification.* Tourn., t. 260.; Lin. Gen. Pl., 1278.; Less. Syn. Gen. Compos., p. 259.
*Synonymes.* Santoline, *Fr.*; Heiligenpflanze, *Ger.*; Santolina, *Ital.*
*Derivation.* From *sanctus*, holy, and *linum*, flax; so called from its supposed medical qualities.

*Gen. Char., &c.* *Heads* many-flowered, sometimes homogamous, and sometimes heterogamous. *Flowers* of the ray few; female, from abortion; somewhat ligulate. *Receptacle* convex, subhemispherical, furnished with oblong half-flower-clasping paleæ. *Involucrum* usually campanulate, with imbricate adpressed scales. *Tube* of corolla usually produced at the base

below into a ring or hollow, which girds the top of the ovarium. *Achenia* oblong, subtetragonal, quite glabrous. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, evergreen; small, linear, toothed, in rows. *Flowers* capitate, bractless; yellow, rarely white. — Diminutive evergreen undershrubs, natives of the South of Europe, and aromatic in all their parts; of easy culture, and propagation by cuttings, in any poor sandy soil, but of short duration.

1. S. *Chamæcypari'ssus L.* The Dwarf Cypress Santolina, *or common Lavender Cotton.*

1021. S. Chamæcyparissus.

*Identification.* Lin. Sp., 1179.; Willd. Sp. Pl., 3. p. 1797.; Ait. Hort. Kew., ed. 2. vol. 4. p. 517.
*Synonymes.* Petit Cyprès, *Fr.*; Abrotano femmina, *Ital.*; Cypressenkraut, *Ger.*
*Engravings.* Lam. Ill., 671. t. 3.; and our *fig.* 1021.

*Spec. Char., &c.* Branches tomentose. Leaves hoary, toothed; the teeth obtuse, and in four rows. Each peduncle bearing a single head of flowers, which has a downy involucre. (*Willd.*) A low evergreen bush. South of France, in poor dry soils. Height 2 ft. to 3 ft. Introduced in 1573. Flowers yellow; July.

The lavender cotton was common in gardens in Gerard's time, who says it is acrid, bitter, and aromatic, and has much the same qualities as southernwood. It was formerly employed as a vermifuge, but is now disused.

1022. S. rosmarinifòlia.

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*Other Species.*—*S. squarròsa* W., *S. víridis* W., and *S. rosmarinifòlia L.* (our *fig.* 1022.), are in gardens, but they are better adapted for being treated as herbaceous plants than as shrubs.

## Genus V.

*ARTEMI'SIA* Cass. The Artemisia. *Lin. Syst.* Syngenèsia Supérflua.

*Identification.* Cassini, according to Lessing in his Synop. Gen. Compos., p. 264.; Ait. Hort. Kew., ed. 2., v. 5. p. 2.
*Derivation.* From *Artemis*, one of the names of Diana; or, as some suppose, from *Artemisia*, the wife of Mausolus; there is a cypress-like and drooping character in some of the species, that may be associated with the latter etymology.

*Gen. Char., &c. Heads* discoid, homogamous or heterogamous. *Flowers* of the ray in one series, usually female, 3-lobed. *Style* bifid, exserted. *Flowers* of the disk 5-toothed, hermaphrodite, or sterile or male from the abortion of the ovarium. *Involucrum* imbricate; scales dry, with scabrous margins. *Receptacle* chaffless, flattish or convex, naked or hairy. *Achenia* obovate, naked, with a minute epigynous disk.—Herbs or undershrubs. The species are nearly all dispersed through the northern hemisphere. Leaves alternate, variously lobed. Heads disposed in spikes or racemes, and the spikes or racemes usually disposed in panicles. Corollas yellow or purple. Plants more or less bitter or aromatic. (*G. Don.*)

*Leaves* simple (apparently compound), alternate, exstipulate, deciduous; deeply cut and divided. *Flowers* terminal. — Woody or suffrutescent evergreen plants, natives of Europe and Asia; all of them highly fragrant and aromatic, and of the easiest culture in any dry soil.

1. *A. Abro'tanum L.* The Abrotanum Artemisia, *or Southernwood.*

*Identification.* Lin. Sp., 1185.; Willd. Sp. Pl., 3. p. 1818.; Ait. Hort. Kew., ed. 2. vol. 5. p. 3.
*Synonymes.* Abrótanum más *Dod. Pempt.* 21.; Old Man; Armoise Aurone, Aurone des Jardins, la Citronelle, la Garderobe, *Fr.*; Eberraute, Wermuth, Stabwurtz, Gartenwurtz, *Ger.*; Abrotano, *Ital.*, *Span.*, and *Port.*
*Derivation.* The Greek name for this plant is Abrotonon, which is variously derived from *abroton*, incorruptible; from *abrōton*, unfit for food; from the soft delicacy (*abrotēs*) of its appearance; or from *abros*, soft, and *tonos*, extension, because it is extended, or grows in a very soft manner. Why Linnæus and others write it Abrotanum is not known. The name of Old Man, doubtless, has reference to its grey and powdery appearance. It is called Garderobe in French, from its being used to prevent moths from getting into clothes-presses and wardrobes. Eberraute is boar's rue; and Wermuth, wormwood; Stabwurtz means staff root; and Gartenwurtz garden root.
*Engravings* Blackw., t. 55.; Woodv., 356. t. 119.; and our *fig.* 1023.

1023. *A. Abrótanum.*

*Spec. Char., &c.* Stem straight. Lower leaves bipinnate, upper ones pinnate, with the segments hair-like. Calyxes pubescent, hemispherical. (*Willd.*) A suffruticose bush. South of Europe, Siberia, Syria, and China. Height 3 ft. to 4 ft. in low situations, and in mountains not above half that height, with the branches recumbent. Introduced in 1596. Flowers yellowish; August to October.

*Varieties.*

A. A. 2 *humile* Hort. is a low-growing spreading shrub, found on mountains in the South of Europe, and retaining its dwarf habit for some years in British gardens.

A. A. 3 *tobolskiànum* Hort., *A.* tobolskiàna *Lodd. Cat.*, was introduced from Siberia in 1820 or before, and is a much more vigorous-growing variety, and larger in all its parts, than the species.

Well known for its fragrance, which appears to proceed from glandular dots in the leaves.

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*Other Species.*—A. *arboréscens* L., a native of the South of France and the Levant, is said to attain the height of 6 or 8 feet, but it is more suffrutescent than *A. Abrótanum.* A. *procèra* Willd., South of France, is equally ligneous with the common southernwood, and grows to the height of 5 or 6 feet in the Paris garden, where it stands the winter without protection. A. *Santónica* L., and our *fig.* 1024., is a low spreading bush, not exceeding a foot in height.

1024. *A. Santónica.*

## Genus VI.

SENE'CIO *Lessing.* The Senecio. *Lin. Syst.* Syngenèsia Supérflua.

*Identification.* Less. Synops. Gen. Compos., p. 391.
*Synonymes.* Cinerària *Lessing Synops. Gen. Compos.* p. 389.; Sèneçon. *Fr.*; Kreuzkreut, *Ger.*
*Derivation.* From *senex*, an old man; the receptacle of the flowers being left naked when the seeds drop.

*Gen. Char., &c. Heads* homogamous, discoid, or heterogamous. *Flowers* of the ray ligulate, female. *Involucre* in one series, sometimes naked, and sometime calyculated by accessory scales. *Scales* usually sphacelate at apex, with subscarious margins, frequently marked by two nerves on the back. *Receptacle* destitute of paleæ, naked or alveolate. *Styles* of hermaphrodite

flowers truncate, and penciled at apex. *Achenia* beakless, wingless, nearly terete, and sulcately angular. *Pappus* pilose, in many series, caducous; bristles erect, nearly equal, very slender, scarcely scabrous.—Herbs or shrubs, very variable in habit. Leaves alternate. Flowers solitary, corymbose, or panicled. Ligulæ of heads yellow, rarely purple or white; the disks usually yellow. (*G. Don.*)

*Leaves* simple, apparently compound, alternate, exstipulate, evergreen; pinnatifid. *Flowers* terminal.—A suffruticose bush, native of the South of Europe.

1025. *S.* Cinerària.

1. *S.* Cinera'ria *Dec.* The Cineraria-like Senecio, *or Sea Ragwort.*

*Identification.* Dec. Prod., 6. p. 355.; Sweet Hort. Brit., ed. 3. p. 384.
*Synonymes.* Cinerària maritima *Lin. Sp.* 1244; Jacobæ'a maritima *Bonp.*; Sicilian Ragwort; Cinéraire, *Fr.*; Meerstrands Aschenpflanze, *Ger.*; Cenerina, *Ital.*
*Engravings.* Flor. Græc., t. 871.; and our *fig.* 1025.

*Spec. Char., &c.* Leaves pinnatifid, tomentose beneath; the lobes obtuse, and each consisting of about 3 obtuse lobelets. Flowers in panicles. Involucre tomentose. (*Willd.*) A suffrutescent bush, remarkable for the white mealy aspect of its rambling branches and foliage. South of Europe, on the sea coast and on rocks. Height 3 ft. to 4 ft. Introduced in 1596. Flowers yellow, ragwort-like; June to August.

Unless planted in very dry soil, it is liable to be killed to the ground in severe winters; but such is the beauty of its whitish, large, and deeply sinuated foliage, at every season of the year, that it well deserves a place on rockwork or against a wall, where it may be associated with *Solànum marginàtum*, and any other ligneous whitish-leaved species of that genus.

## Genus VII.



MUTI'SIA Cav. The Mutisia. *Lin. Syst.* Syngenèsia Polygàmia Supérflua.

*Identification.* Lin. fil. Sup. Plant.; Dec. Prod., 7. p. 4.; Cav. Icon., 5. p. 64.; Hook. Bot. Misc., 1. p. 7.
*Derivation.* Named by Linnæus after his learned friend and correspondent, *Don Jose Celestino Mutis*, chief of the botanical expedition to New Grenada.

*Gen. Char., &c. Heads* heterogamous, unequal-flowered. *Involucre* of many series of flat imbricated scales; outer ones shorter. *Receptacle* naked. *Flowers* of the disk hermaphrodite, those of the ray female. *Corollas* bilabiate, the tube 5—10—15-nerved; those on the disk rather tubular, the throat not distinct from the tube; outer lip of the limb tridentate, inner one bipartite: the outer lip of the ray flowers large, ligula-formed, and tridentate at apex; under one bipartite, with linear lobes. *Anthers* wanting in the ray flowers; those in the disk exserted, long-tailed. *Style* cylindrical, bifid. *Achenia* beaked, ribbed, long, and glabrous; the paleæ being conferruminated at the base, fall off altogether or in one piece. (*G. Don.*)

*Leaves* simple or apparently compound, alternate, exstipulate, evergreen; entire or serrated; the common petiole usually drawn out at the end into a tendril. *Flowers* purple, rose-coloured, or yellow.—Climbing shrubs, natives of South America, requiring the protection of a wall in the climate of London.

1. M. LATIFO'LIA *D. Don.* The broad-leaved Mutisia.

*Identification.* D. Don in Lin. Trans., 16. p. 270.; Brit Fl. Gard., 2d series, t. 288.
*Engravings.* Swt. Brit. Fl. Gard., l. c.; and our *fig.* 1026.

*Spec. Char., &c.* Stem winged. Wings broad, leafy. Leaves cordate-oblong, dentate-spinose, woolly beneath. Involucre scaly, appendiculate. Pappus arranged in a double series, feathery, equal, truncate at the apex. (*D. Don.*) A climbing evergreen shrub. Valparaiso in Chili, on hills, among bushes. Stem 10 ft. to 15 ft. Introduced in 1832. Flowers pink, or rosy, and yellow; September and October.

A very singular and at the same time beautiful shrub, which no collection ought to be without, where there are a wall and a dry soil.

1026. Mutisia latifolia.

*Other Species.* — *M. ilicifolia*, *M. inflexa*, *M. linearifolia*, *M. runcinata*, and *M. subspinosa*, are figured and described in *Hooker's Botanical Miscellany*, vol. i.; and *M. arachnoidea Mart.* is figured in *Bot. Mag*, t. 2705. Most of these species would probably live against a wall in a warm situation, on a dry soil. At all events M. latifolia is tolerably hardy, having stood out several years in the climate of London, without the slightest protection; and as it represents a family of climbers so very different from every other hitherto cultivated in British gardens, we cannot but strongly recommend it to every one who is curious in plants.

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## ORDER XLIII. ERICA'CEÆ.

*ORD. CHAR. Calyx* and *Corolla* each with 4—5 segments. *Stamens* 4—5—8—10, inserted variously, but alternately with the segments of the corolla, where not more numerous than they. *Anthers*, in most, with 2 cells. *Ovary* with its cells, in most, agreeing in number with the segments of the calyx or corolla. *Style* and *stigma* undivided. *Seeds* many. *Albumen* fleshy. *Embryo* erect, slender.

*Leaves* simple, opposite or whorled, stipulate or exstipulate, deciduous or evergreen; entire or serrated. *Inflorescence* variable, the pedicels generally bracteate. — Shrubs, deciduous and evergreen, and some of them low trees; natives of most parts of the world; and containing many of our finest and most ornamental harpy shrubs in British gardens.

All the species have hair-like roots, and require a peat soil, or a soil of a close cohesive nature, but which is yet susceptible of being readily penetrated by the finest fibrils which belong to any kind of plants. Peat, thoroughly rotted leaf mould, or very fine loamy sand, are soils of this description, and are accordingly required, more or less, for all the plants of this order. The hair-like roots of the *Ericaceæ* soon suffer, either from a deficiency or a superfluity of moisture; and hence an important part of their culture in gardens consists in keeping the soil in which they grow equally moist. In transplanting hair-rooted plants, they are very apt to suffer from their slender fibrils coming in contact with the air: but, fortunately, these fibrils are so numerous, and so interlaced with each other, as to form a kind of network, which encloses and supports a portion of the soil in which they grow; and the plants are, consequently, almost always sent from the nurseries

with small balls of earth attached to them. All the species are readily propagated by seeds, layers, or cuttings.

The following characteristics of the genera, and of the groups which they form, are deduced from Don's *Miller*, in which the whole order has been remodelled by Professor Don: —

### Sect. I. ERI'CEÆ.

*Sect. Char.* Calyx not connate with the ovary, except in Gaulthèr*ia*. Disk nectariferous, hypogynous. Fruit, in most, a capsule. Inflorescence, in the bud state, naked.

§ i. ERI'CEÆ NORMA'LES. *Calyx and Corolla each with* 4 *Segments. Corolla permanent. Stamens* 8. *Fruit with* 4 *Cells.*

ERI'CA *D. Don.* Filaments capillary. Anthers not protruded beyond the corolla; the cells short, opening by an oblong hole. Stigma peltate. Leaves needle-shaped, scattered, or in whorls.

GYPSOCA'LLIS *Sal.* Filaments flat. Anthers protruded beyond the corolla the cells opening by an oblique hole. Stigma simple. Leaves needle-shaped, in whorls.

CALLU'NA *Sal.* Corolla shorter than the calyx. Filaments dilated. Anthers not protruded beyond the corolla, with two small appendages at the base: their cells end in a point, and open lengthwise. Leaves arrow-shaped at the base, obtuse at the tip; in transverse section triangular, imbricate in 4 rows.

§ ii. ANDROME'DEÆ. *Corolla deciduous. Stamens, in most, not protruded beyond the Corolla.*

A. *The following* 7 *Genera have all been instituted out of the Genus Andrómeda; and all have* 10 *Stamens,* 1 *Pistil, and Fruit that has a loculicidal Dehiscence.*

ANDRO'MEDA L. Calyx with 5 acute segments. Corolla globose, with a contracted 5-toothed mouth. Filaments bearded. Anthers with short, 1-awned cells. Stigma truncate. Leaves linear lanceolate. Flowers in terminal umbel-like groups.

CASSI'OPE D. Don. Calyx with 5 leafy segments. Corolla bell-shaped, 5-cleft. Filaments glabrous. Anthers with short, tumid, 1-awned cells. Stigma obtuse. Capsule with its valves bifid at the tip. Small heath-like shrubs. Leaves imbricate. Flowers solitary.

CASSA'NDRA D. Don. Calyx bibracteate, 5-cleft. Corolla oblong, with a contracted 5-toothed mouth. Filaments glabrous. Anthers with cells elongated at the tip, and tubular there. Stigma annulated. Leaves with short petioles, and elliptic oblong disks, that have peltate scales on both surfaces. Flowers axillary, disposed as if in racemes along the terminal parts of the branches.

ZENO'BIA D. Don. Calyx 5-toothed. Corolla bell-shaped, with a revolute 5-lobed limb. Filaments glabrous. Anthers with cells elongate, tubular, and 2-awned at the tip. Stigma truncate. Leaves dilated, with the margins usually toothed. Flowers in racemes.

LYO'NIA Nutt. Calyx 5-parted. Corolla ovate or tubular, with a contracted 5-toothed mouth. Filaments short, flat, downy. Anthers with membranous cells that open lengthwise. Stigma obtuse. Capsule 5-cornered. Flowers for the most part terminal, disposed in racemose panicles.

LEUCO'THÖE .D. Don. Calyx with 5 leafy segments. Corolla tubular, toothed. Filaments flat, downy. Anthers with short truncate cells. Stigma large, capitate. Flowers white, in racemes.

PI'ERIS *D. Don.* Calyx 5-parted. Corolla tubular or ovate, with a contracted, 5-toothed, revolute mouth. Filaments dilated, furnished with 2 bristles at the tip. Anthers with short incumbent cells that open length-

wise. Stigma truncate. Leaves coriaceous. Flowers drooping, terminal, racemose.

B. *Capsule with the Dehiscence septicidal.*

PHYLLO'DOCE Sal. Calyx with 5 segments. Corolla globose, with a contracted 5-toothed mouth. Stamens 10, not protruded. Filaments slender, glabrous. Anthers with short truncate cells. Stigma peltate, with 5 tubercles.

BRYA'NTHUS *Gmel.* Calyx 5-leaved, imbricate. Corolla deeply 5-parted, spreading. Stamens 10, shorter than the corolla. Filaments flattened, glabrous. Cells of anthers short, awned behind. Stigma obtuse. Capsule 5-celled.

DABŒ'CIA D. Don. Calyx with 4 segments. Corolla oval, inflated; its mouth 4-toothed. Stamens 8, enclosed. Filaments dilated, glabrous. Anthers linear, sagittate at the base, their cells parallel, loosened at the apex, opening lengthwise. Stigma truncate. Capsule 4-celled.

C. *Calyx and Corolla each with 5 Segments. Stamens 10, not protruded beyond the Corolla.*

*A'*RBUTUS *Camer.* Corolla globose or ovate, with a small reflexed border. Anthers compressed at the sides, opening at the tip by 2 pores, fixed by the back beneath the tip, and there furnished with 2 reflexed awns. Ovary with 5 cells, ovules in each cell many. Berry externally granulate.

*A*RCTOSTA'PHYLOS *Adans.* All as in *A'*rbutus, except that the fruit is not externally granulate, and that the cells, which are 5 in number, include each but 1 seed.

PERNE'TTY*A* Gaudichaud. Corolla globose, with a revolute limb. Anthers with the 2 cells 2-lobed at the tip, the lobes bifid. Hypogynous scales 10, 3-lobed, surrounding the ovary. Berry with 5 cells and many seeds.

GAULTHE'R*IA* L. Corolla ovate, inflated. Anthers bifid at the tip, each lobe with 2 awns. Ovary half-inferior. Hypogynous (? perigynous) scales 10, usually united at the base. Capsule with 5 cells, the dehiscence loculicidal.

EPIGÆ'A *L.* Corolla salver-shaped. Capsule with 5 cells.

*C*LE'THRA *L.* Corolla so deeply 5-parted as to seem 5-petaled. Filaments membranous. Capsule with 3 cells, many seeds, and a loculicidal dehiscence.

D. *The Characteristics as under.*

PHALEROCA'RPUS *D. Don.* Calyx 4-cleft, with 2 bracteas at its base. Corolla short, campanulate, 4-cleft. Stamens 8. Filaments ? hairy. Anthers semibifid. Hypogynous disk 8-lobed or 8-toothed.

Sect. II. *R*HODO'REÆ.

*Sect. Char.* Calyx not connate with the ovary. Disk nectariferous, hypogynous. Buds of inflorescence resembling strobiles in form, and in being scaly. Leaves flat, callous at the extremity of the midrib.

*R*HODODE'NDRON *D. Don.* Calyx 5-parted. Corolla somewhat funnel-shaped, 5-cleft. Stamens 5—10. Anthers opening by terminal pores. Capsule 5-celled, 5-valved, opening at the tip.

KA'LM*IA* L. Corolla of the shape of a wide-spread bell, and with 10 cavities on the inside, in which the anthers of 10 stamens repose before shedding their pollen. Capsule 5-celled. Dissepiments marginal.

MENZIE'S*IA* D. Don. Calyx 4-cleft. Corolla globose, 4-cleft. Stamens 8. Capsule 4-celled, 4-valved.

AZA'LEA *D. Don.* Calyx 5-parted Corolla bell-shaped, 5-cleft. Stamens 5. Cells of anthers opening lengthwise. Capsule 5-celled, 5-valved, opening at top.

LEIOPHY'LLUM *Pers*. Calyx and corolla deeply 5-parted. Stamens 10, exserted. Anthers lateral, opening lengthwise on the inside. Capsule 5-celled, 5-valved, opening at the tip.

*LE`DUM L*. Calyx minute, 4-toothed. Corolla in 5 segments, so deep as to seem petals. Stamens 5—10, exserted. Anthers opening by pores at the tip. Capsule 5-celled, 5-valved, opening at the base. Seeds terminating in a wing at each end.

### Sect. III. *VACCINIE`Æ*.

*Sect. Char*. Calyx connate with the ovary. Disk nectariferous, perigynous. Fruit a berry.

*VACCI'NIUM L*. Calyx 4—5-toothed. Corolla pitcher-shaped or bell-shaped, 4—5-cleft. Stamens 8—10. Anthers 2-horned; and, in some, furnished at the back with spreading spurs or bristles. Berry globose, 4—5-celled, many-seeded.

OXYCO'CCUS *Pers*. Calyx 4-cleft. Corolla 4-parted, with the segments somewhat linear and revolute. Stamens 8. Filaments conniving. Anthers tubular, tripartite. Berry 4-celled, many-seeded.

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## Sect. I. *ERI'CEÆ*.

### § i. *Eríceæ normàles*.

In British gardens all the species are propagated by layers or division, or by cuttings from the points of the growing shoots planted, but not deep, in pure sand, and covered with a hand-glass. All the plants require a peaty soil, mixed with sand; a cool subsoil, moist rather than dry; and an open airy situation. They also require to be renewed every 3 or 4 years.

### GENUS I.

*ERI'CA D. Don*. THE HEATH. *Lin. Syst*. Octándria Monogýnia.

*Identification*. D. Don in Edinb. New Phil. Journ., 17. p. 152.; Don's Mill., 3. p. 790.
*Synonymes*. *E*rica sp. of Linnæus and other authors; Bruyère, *Fr*.; Heide, *Ger*.; Erica, *Ital*.
*Derivation*. The erica of Pliny is altered from the ereikē of Theophrastus, which is derived from *ereikō*, to break; from the supposed quality of some of the species of breaking the stone in the bladder.

*Gen. Char*. *Calyx* 4-parted, with a naked base. *Corolla* globose or urceolate, with a 4-lobed limb. *Stamens* enclosed. *Filaments* capillary. *Anthers* bifid; cells of anthers opening by an oblong hole, awned or crested at the base or mutic. *Stigmas* peltate. *Capsule* 4-celled, many-seeded. (*Don's Mill*.)

*Leaves* simple, alternate or verticillate, exstipulate, evergreen; linear or chaffy. *Flowers* terminal, fascicled, or racemose. *Pedicels* scaly.—Shrubs, diminutive, evergreen, with hair-like roots; natives of Europe.

#### 1. *E. TE'TRALIX L*. The four-leaved Heath.

*Identification*. Lin. Sp., ed. 2. p. 507.; Don's Mill., 3. p. 792.
*Synonymes*. *E*. botuliformis *Sal*. in *Lin. Soc. Trans*. 4. p. 369.; *E*. barbárica *Raii Syn*. 471.; *E*. pùmila *Park. Theatr*. 1483. No. 5.; *E*. *T*étralix rùbra *Hort. Eric. Woburn*. p. 25.; the cross-leaved Heath; Sumpf Heide, *Ger*.; Scopa di Fior rosso, *Ital*.
*Engravings*. Curt. Fl. Lond., fasc. 1. t. 21.; Eng. Bot., t. 1314.; and our *fig*. 1027.

*Spec. Char., &c.* Plant of a greyish hue. Leaves ciliated, 4 in a whorl. Flowers in terminal heads. Corolla ovate-globose, about 3 lines long, downy at the tip outside. Spurs of anthers lanceolate. (*Don's Mill.*) A diminutive evergreen bush. North of Europe, in boggy or moory ground; plentiful in Britain. Height 6 in. to 1 ft. Flowers red; July to September.

1027 *E. Tétralix.*

*Varieties.*

- E. T. 1 *rùbra* Hort. Eric. Woburn. p. 25. — Corolla pale red.
- E. T. 2 *cárnea* Loudon's H. B. — Corolla of a flesh colour.
- E. T. 3 *álba* Hort. Eric. Woburn. p. 25. — Corolla white.
- E. T. 4 *Mackaiàna*. *E.* Mackaiàna Bab. Fl. Hiber. p. 181. — It has the leaves and calyx of *E.* ciliàris, and the flowers of *E. Tétralix*; probably a hybrid between the species. Ireland.

The badge of the clan Macdonald, and the species most commonly used for making besoms.

### 2. *E.* CINE REA *L.* The grey Heath.

*Identification.* Lin. Sp., ed. 2. p. 501.; Don's Mill., 3. p. 795.
*Synonymes.* *E.* mutábilis *Salisb.* in *Lin. Trans.* 4. p. 369.; *E.* hùmilis *Neck. Gall.* 182.; *E.* tenuifòlia *Ger.* 1198.; *E.* cinèrea rùbra *Hort. Eric. Woburn.* p. 5.; Scopa, *Ital.*
*Engravings.* Curt. Fl. Lond., fasc. 1. t. 25.; Engl. Bot., t. 1015.; and our *fig.* 1028.

*Spec. Char., &c.* Leaves 3 in a whorl. Corolla ovate-urceolate. Flowers verticillate, on the naked stems. Crests of anthers ear-formed. Corolla 3 lines long, purple, changing to blue as it fades. This is easily distinguished from *E. Tétralix* by its glaucous deep green hue, and deep purple or sometimes white flowers. (*Don's Mill.*) A diminutive evergreen shrub. Europe, but not in the south, nor in the extreme north; plentiful in Britain. Height 6 in. to 1 ft. Flowers purple, changing to blue as they fade; July to September.

1028. *E.* cinèrea.

*Varieties.*

- E. *c.* 2 *atropurpùrea* Lodd. Bot. Cab. 1409. — Plant dwarf. Flowers deeper purple.
- E. *c.* 3 *álba* Lodd. Cat. — Flowers white.
- E. *c.* 4 *pállida* Lodd. Bot. Cab. 1507. — Flowers pale purple.
- E. *c.* 5 *carnéscens* Lodd. Cat. — Flowers flesh-coloured.
- E. *c.* 6 *prolífera* Lodd. Cat. — Flowers proliferous.
- E. *c.* 7 *stricta* Lodd. Cat. — Branches erect.

The badge of the clan Macalister. Readily distinguished from *E. Tétralix* by its glabrous deep green hue, and deep purple flowers.

### 3. *E.* AUSTRA'LIS *L.* The southern Heath.

*Identification.* Lin. Mant., p. 231.; Don's Mill., 3. p. 795.
*Synonyme.* *E.* pistillàris *Sal.* in *Lin. Soc. Trans.* 6. p. 368.
*Engravings.* Andr. Heaths, 3. t. 21.; Bot. Cab., t. 1472.; and our *fig.* 1029.

*Spec. Char., &c.* A shrub, 3 ft. to 6 ft. high. Leaves 4 in a whorl, scabrous, spreading, mucronate. Flowers terminal, small. Corolla purplish red, 3 lines long, with a curved funnel-shaped tube, and a recurved limb. Pedicels beset with gemmaceous bracteas. Anthers crested. (*Don's Mill.*) An erect pyramidal shrub. Spain and Portugal. Height 5 ft. to 7 ft. Introduced in 1769. Flowers red; April to August.

1029. *E.* austràlis.

One of the most showy of all the arboreous heaths, and flowering profusely when planted in an open situation.

4. *E.* CILIA'RIS *L.* The ciliate-*leaved* Heath.

*Identification.* Lin. Sp , ed. 1. p. 354. ; Don's Mill., p. 798.
*Engravings.* Bot. Mag., t. 484. ; Eng. Bot. Suppl., t. 2618. ; and our *fig.* 1030.

*Spec. Char., &c.* Leaves 3 in a whorl, ovate, glandularly ciliate, spreading, rather remote. Flowers terminal, subracemose, directed to one side. Bracteas sessile, approximate to the calyx. Segments of calyx spathulate, ciliate. Corolla smooth, ovate, more ventricose on the upper side, 4 lines long, pale red. Style prominent. (*Don's Mill.*) A diminutive evergreen shrub. Portugal, and England, in Cornwall. Height 6 in. to 1 ft. Flowers pale red ; August and September.

A comparatively rare and very beautiful species.

1030. *E.* ciliaris.

## GENUS II.

### GYPSOCA'LLIS *Sal.* THE GYPSOCALLIS, *or* *MOOR HEATH.* *Lin. Syst.* Octándria Monogýnia.

*Identification.* Salisbury's MSS. ; D. Don in E. Phil. Journ., 17. p. 153. ; Don's Mill., 3. p. 800.
*Synonyme.* Ericeæ sp. of other authors.
*Derivation.* "From *gupsos*, lime, and *kallistos*, most beautiful ; the species are very elegant, and generally inhabit calcareous districts." (*Don's Mill.*)

*Gen. Char.* *Calyx* 4-parted, glumaceous, naked at the base. *Corolla* campanulate, or short tubular, with a dilated mouth. *Stamens* exserted ; filaments flattened or filiform. *Anthers* bipartite, having the cells mutic at the base, distinct and substipulate, dehiscing by an oblique pore. *Stigma* simple. *Capsule* 4-celled, many-seeded. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen ; acerose, whorled, lateral or terminal. *Flowers* crowded.—Shrubs, diminutive, evergreen; natives of Europe and Africa. This genus is easily distinguished from *Erica*, by the exserted anthers, flattened filaments, and simple stigma.

1. G VA'GANS *Sal.* The wandering Gypsocallis, *or Cornish Moor Heath.*

*Identification.* Sal. MSS. ; Don's Mill., 3. p. 800.
*Synonymes.* *E.* vàgans *Lin. Mant.* 2. p. 230. ; *E.* vàga *Sal.* in *Lin. Soc. Trans.* 6. p. 344. ; *E* multiflòra *Huds. Fl. Anglica* 1. 66. ; *E.* didyma *Stokes* in *Withering's Bot. Arrangement* 400. ; *E.* purpurascens *Lam. Dict.* 1. p. 488.
*Engravings.* Eng. Bot., t. 3. ; Bull. Fl. Par., t. 203. ; and our *fig.* 1031.

*Spec. Char., &c.* Stem glabrous. Leaves 4—5 in a whorl, contiguous, glabrous. Flowers small, upon footstalks, axillary, mostly 2 in an axil, and those of any branch seeming as if disposed in a raceme, from the flowers being stalked and produced from axils near one another. Bracteas remote from the calyx. Corolla short, bell-shaped. (*Don's Mill.*) A diminutive evergreen shrub. England, in Cornwall; and the South of France and North of Africa. Height 6 in. to 1 ft. Flowers pale purplish red ; July to September

1031. G. vàgans.

*Varieties.*

*G. v.* 2 *pállida.*—Corolla pale red. (*Don's Mill.*)

*G. v.* 3 *rubéscens* Bree, Loud. H. B. ed. 2. p. 588.—Corolla rubescent.

- *G. v.* 4 *purpurascens* Bree, Loud. H. B. ed. 2. p. 588. — Corolla purplish.
- *G. v.* 5 *alba.* — Flowers axillary. Corolla white. (*Don's Mill.*)
- *G. v.* 6 *tenella.* — Flowers terminating the small branches. Corolla white. (*Don's Mill.*)

2. G. MULTIFLO'RA *D. Don.* The many-flowered Gypsocallis, *or Moor Heath.*

*Identification.* D. Don in Ed. Phil. Journ., July 1834.; Don's Mill., 3. p.801.
*Synonymes.* Erica multiflora *Lin. Sp.* ed. 1. p. 355.; *E. juniperifolia*, &c. *Gardel Aix.* p. 160. t. 32.; *E.* multiflora longipedicellata *Wendl. Eric.* fasc. 5. p. 7.; *E.* peduncularis *Presl*; Scopa grande rosso, *Ital.*
*Engravings.* Bot. Cab., t. 1572.; and our *fig.* 1032.

*Spec. Char., &c.* Leaves 4—5 in a whorl, glabrous, linear. Flowers axillary, disposed in a racemose corymb. Bracteas remote from the calyx. Corolla $1\frac{1}{2}$ to 2 lines long, pale red, bell-shaped, with a reflexed limb. Pedicel twice as long as the corolla. Anthers black, their orifices near the tip. (*Don's Mill.*) A diminutive evergreen shrub. France, Spain, and the South of Europe generally. Height 1 ft. to 2 ft. Introduced in 1751. Flowers pale red; May or June; and, under favourable circumstances, till November or December. Capsule brown.

Like other heaths, to flower freely, it requires to be kept in a cool, open, airy situation, in which it will attain the height of 2 ft.

1032. G. multiflora.

3. G. CA'RNEA *D. Don.* The flesh-colour-*flowered* Gypsocallis, *or Moor Heath.*

*Identification.* D. Don in Edinb. New Phil. Journ., July, 1834; Don's Mill., 3. p. 801.
*Synonymes.* Erica carnea *Lin. Sp.* ed. 2. p. 504.; *E.* herbacea *Lin. Diss.* No. 57.; *E.* saxatilis *Sal.* in *Lin. Soc. Trans.* 6. p. 343.
*Engravings.* Bot. Mag., t. 11.; Jacq. Fl. Austr., 1. f. 31.; Bot. Cab., t. 1452.; and our *figs.* 1033.

1033. G. carnea.

*Spec. Char., &c.* Stems and branches prostrate. Leaves 3—4 in a whorl, linear, glabrous, sharply reduplicate. Flowers axillary, drooping, disposed in racemes, and directed to one side, pale red. Bracteas remote from the calyx. Corollas conical, $2\frac{1}{2}$ lines. Anthers with an orifice extending from the middle to the tip. (*Don's Mill.*) A diminutive, procumbent, evergreen shrub. South of Germany and Switzerland, and North Wales. Height 6 in. Cultivated in 1763. Flowers pale red; January to April.

4. G. MEDITERRA'NEA *D. Don.* The Mediterranean Gypsocallis, *or Moor Heath.*

*Identification.* D. Don in Edinb. New Phil. Journ., July, 1834; Don's Mill., 3 p. 801.
*Synonymes.* Erica mediterranea *Lin. Mant.* p. 229.; *E.* lugubris *Sal.* in *Lin. Soc. Trans.* 6. p. 343.
*Engravings.* Bot. Mag., t. 471.; and our *fig.* 1034.

*Spec. Char., &c.* A shrub, 4 ft. to 6 ft. high. Leaves 4—5 in a whorl, linear, cuneate, glabrous. Flowers axillary, disposed in the manner of a raceme, directed to the lower side, so nodding Bracteas above the middle of the pedicels. Corolla pitcher-shaped, red. Anthers dark, foraminose from the

1034. G. mediterranea.

middle. (*Don's Mill.*) A pyramidal shrub. South of Europe, in the region of the Mediterranean; and Cunnemara, on the western coast of Ireland. Height 4 ft. to 6 ft. sometimes 10 ft. Cultivated in 1596. Flowers red, with dark anthers; March to May.

The hardiest of arboreous heaths in British gardens; though plants at Syon, which had stood upwards of half a century, and were above 10 ft. high, were killed to the ground by the winter of 1837–8.

## Genus III.

### CALLU`NA *Sal.* The Calluna. *Lin. Syst.* Octándria Monogýnia.

*Identification.* Salisbury in Lin. Soc. Trans., 6. p. 317.; Don's Mill., 3. p. 828.
*Synonyme.* *E*rica sp. *Lin. and others.*
*Derivation.* The name of Callùna is derived from *kallunō*, which, as Sir J. E. Smith observes, "is doubly suitable; whether, with Mr. Salisbury and Dr. Hull, we take it to express a cleansing property, brooms being made of ling; or whether we adopt the more common sense of the word, to ornament or adorn, which is very applicable to the flowers." (*Eng. Flora*, ii. p. 224.)

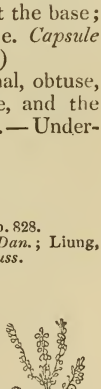
*Gen. Char.* *Calyx* 4-parted, membranous, coloured, furnished with 4 bracteas at the base. *Corolla* campanulate, 4-lobed, shorter than the calyx. *Stamens* enclosed. *Filaments* dilated. *Anthers* bipartite, biappendiculate at the base; cells of anthers mucronulate, dehiscing lengthwise. *Stigma* capitate. *Capsule* with a septicidal dehiscence. *Seeds* ovoid, smooth. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; acerose, trigonal, obtuse, very short, imbricating in 4 rows, having the margins revolute, and the base sagittate. *Flowers* disposed in long, terminal, spicate racemes.—Under-shrub, small, spreading; native of Europe on poor soils.

#### ♃ 1. C. vulga`ris *Sal.* The common Ling, *or Heather.*

*Identification.* Salisb. Lin. Trans., 6. p. 317.; Eng. Flora, 2. p. 224.; Don's Mill., 3. p. 828.
*Synonymes.* *E*rica vulgàris *Lin. Sp.* p. 501.; la Bruyère, *Fr.*; Heide, *Ger.*; Lyng, *Dan.*; Liung, *Swed.*; Brentoli, Cecchia, or Scopa, *Ital.*; Brezo, *Span.*; Urze, *Port.*; Weresk, *Russ.*
*Engravings.* Eng. Bot., t. 1013.; and our *fig.* 1035.

*Spec. Char., &c.* Leaves 3-cornered in a transverse section of them, arrow-shaped at the base, obtuse at the point, revolute in the lateral margins, imbricate in 4 rows. Flowers disposed in long, terminal, spicate racemes. (*Don's Mill.*) A small, spreading, evergreen shrub. Europe, plentiful in Britain. Height 6 in. to 3 ft. Flowers purplish; July to September.



1035. C. vulgàris.

*Varieties.*

- ♃ *C. v.* 1 *purpùrea.*—Flowers purplish red.
- ♃ *C. v.* 2 *spùria.*—Branches tufted. Racemes short. Flowers purplish red.
- ♃ *C. v.* 3 *decúmbens.*—Branches decumbent. Racemes short. Flowers purplish red.
- ♃ *C. v.* 4 *tomentòsa.*—Leaves and branches woolly. Flowers purplish red.
- ♃ *C. v.* 5 *álba.*—Flowers white, less crowded. Corolla shorter.
- ♃ *C. v.* 6 *flòre plèno.*—Flowers double, pale purplish red.
- ♃ *C. v.* 7 *fòliis variegàtis.*—Leaves variegated. Flowers purplish.
- ♃ *C. v.* 8 *aúrea.*—Leaves variegated with yellow.
- ♃ *C. v.* 9 *coccínea.*—Flowers deep red.
- ♃ *C. v.* 10 *spicàta.*—Racemes long. Flowers red or white.
- ♃ *C. v.* 11 and 12.—Two varieties are mentioned by Sir W. J. Hooker, as being in cultivation in the Glasgow Botanic Garden, where they have retained their differences for years. They have both pubes-

cent branchlets : but the one has deep red flowers, and was received from Aberdeenshire; and the other, which was received from Arran, has white flowers, that appear later than those of the other varieties. The first may be called *C. v.* 11 *àtro-rùbens*, and the second *C. v.* 12 *serótina*.

Very ornamental, either as detached bushes, or as edgings to beds and borders, in sandy or eaty soil.

## § ii. *Andromédeæ*.

All the species are propagated by layers, and some of them also by division, though most of them might, doubtless, be rooted in sand from the points of the growing shoots, as in the preceding section; but layers soonest make saleable plants. They all require a soil more or less peaty, and a situation cool, open, and moist, rather than dry and airy. Most of the genera are of comparatively short duration, though some species of Andrómed*a* and *A*'rbutus attain an almost tree-like size, and endure many years.

## Genus IV.

ANDRO'MED*A* L. The Andromeda. *Lin. Syst.* Decándria Monogýnia.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 157.; Don's Mill., 3. p. 828.
*Synonyme.* Polifòlia *Buxbaum Cent.* 5 p. 5. t. 55. f. 1.; Andrómed*a* sp. *L.*
*Derivation.* *Andromeda* was the name of the daughter of Cephalus, king of Ethiopia. How a plant came to be named by Linnæus after this personage, will be found given at length in our first edition.

*Gen. Char.* *Calyx* 5-cleft. *Segments* acute, simple at the base. *Corolla* globose, with a contracted 5-toothed mouth. *Stamens* 10, enclosed; filaments bearded; cells of anthers short, furnished with 1 awn each. *Stigma* truncate. *Capsule* with a loculicidal dehiscence. *Placenta* 5-lobed; lobes simple. *Seeds* elliptic. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; linear lanceolate, mucronulate. *Flowers* terminal, umbellate, reddish or snow white. — Undershrubs, evergreen, spreading; natives of Europe and North America.

1. A. POLIFO'LIA *L.* The Poly-leaved Andromeda, *or Moorwort.*

*Identification.* Lin. Sp., 564.; Don's Mill., 3. p. 829.
*Synonymes.* Rhododéndron polifòlium *Scop. Carn.* No. 482.; wild Rosemary, Poly Mountain, Marsh Cistus, Moorwort, Marsh Holy Rose; Andromède, *Fr.* and *Ger.*
*Engravings.* Lin. Fl. Lapp., t. 1. f. 3.; Eng. Bot., t. 713.; and our *fig.* 1036.

*Spec. Char., &c.* Leaves oblong, glaucous beneath. Corollas ovate, flesh-coloured or pale red. Segments of calyx ovate, spreading, white, sometimes tipped with red. (*Don's Mill.*) A diminutive evergreen shrub. Northern countries of Europe, on turfy bogs; and also in Britain; North America, from Canada to Pennsylvania. Height 6 in. to 1 ft. Flowers white, tipped with red; May to September. Capsule brown.

1036. A. polifòlia.

*Varieties.*

- *A.* p. 1 *angustifòlia* Lodd. Bot. Cab. t. 1591., and our *fig.* 1037., has narrow leaves.
- *A.* p. 2 *ericoìdes* has the habit of a heath.
- *A.* p. 3 *grandiflòra* Lodd. Bot. Cab. t. 1714., and our *fig.* 1038., has large flowers.

- *A.* p. 4 *latifòlia* Lodd. Bot. Cab. t. 546., and our *fig.* 1039., has broad leaves, and is a larger plant.
- *A.* p. 5 *mínima* has small flowers.

1037. A. *p.* angustifòlia. 1038. A. *p.* grandiflòra. 1039. A. *p.* latifòlia. 1040. A. *p.* revolùta.

- *A.* p. 6 *revolùta* Lodd. Bot. Cab. t. 725., and our *fig.* 1040., has the flowers bent back.
- *A.* p. 7 *scótica* is common in Scotland.
- *A.* p. 8 *stricta* has the branches erect.

Cultivated in gardens in moist peaty soil; and it is only in such a soil, and in an open airy situation, that it can be preserved for any length of time.

2. A. ROSMARINIFO'LIA *Pursh.* The Rosemary-leaved Andromeda.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 291.; Don's Mill., 3. p. 829.
*Synonyme.* *A.* polifòlia *Michx. Fl. Bor. Amer.* 2. p. 254.
*Engravings.* Pall. Fl. Ross., 2. p. 53. t. 70. f. B.; and our *fig.* 1041.

*Spec. Char., &c.* Leaves linear-lanceolate, convex, revolute, white beneath, and canescent above. Corollas nearly globose. Calycine segments oblong red. Flowers white, tinged with red. (*Don's Mill.*) A diminutive evergreen shrub. Newfoundland and Labrador. Height 6 in. to 1 ft. Introduced ? 1790. Flowers white, tinged with red; June.

1041. A. rosmarinifòlia.

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*Andrómeda Drummóndii Hook., Gard. Mag.* 1840 p. 4., is a slender-growing plant, with the young leaves and shoots covered with a scurf, like that which is found on the *Elæágnus*. Horticultural Society's Garden.

## GENUS V.

CASSI'OP*E* D. Don. THE CASSIOPE. *Lin. Syst.* Decándria Monogýnia.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 157.; Don's Mill., 3. p. 829.
*Synonyme.* Andrómeda sp. *Lin.*, *Pall.*
*Derivation.* From *Cassiope*, wife of Cepheus, and mother of Andromeda, whose foolish boast that her beauty was superior to that of the Nereides, provoked the wrath of Neptune.

*Gen. Char.* *Calyx* 5-leaved; leaves imbricated at the base. *Corolla* campanulate, 5-cleft. *Stamens* 10, enclosed; filaments glabrous; cells of anthers short, tumid, furnished with one awn each. *Style* dilated at the base. *Stigma* obtuse. *Capsule* with a loculicidal dehiscence; valves bifid at the apex. *Placenta* 5-lobed; lobes simple. *Seeds* oblong, compressed, shining. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; very small, acerose, imbricated. *Flowers* solitary, pedunculate, rose-coloured, lateral or terminal.—Shrubs, small, heath-like; natives of Asia and North America.

1. C. HYPNÖIDES *D. Don.* The Hypnum-like Cassiope.

*Identification.* D. Don in Ed. Phil. Journ., 17. p. 157.; Don's Mill., 3. p. 829.
*Synonyme.* Andrómeda *hypnöides Lin. Sp.* 563.
*Engravings.* Pall. Fl. Ross., t. 73. f. 2.; Bot. Mag., t. 2936.; and our *fig.* 1042.

*Spec. Char., &c.* A small creeping shrub, resembling a kind of moss. Leaves

loose, flat, and needle-like. Flowers small, with a red calyx and white corolla. (*Don's Mill.*) A diminutive creeping evergreen shrub. Lapland, Denmark, and Siberia, on the mountains, where it covers whole tracts of land; and on the north-west coast of North America. Height 6 in. Intro. 1798. Flowers white, tinged with red; June and July. Rare in British gardens.

1042. C. hypnöides.

2. C. TETRAGO'NA *D. Don.* The 4-cornered-*branched* Cassiope.

*Identification.* D. Don in Ed. New Phil. Jour., 17. p. 157.; Don's Mill., 3. p. 829.
*Synonyme.* Andrómeda tetragòna *Lin. Sp.* 563.
*Engravings.* Pall. Fl. Ross., t. 73. f. 4.; Bot. Mag., t. 3181.; and our *fig.* 1043.

1043. C. tetragòna.

*Spec. Char., &c.* Leaf obtuse, minutely ciliated, its margin revolute, in such a manner as to render the leaf tumid, and somewhat 2-celled. Leaves adpressedly imbricate in 4 rows, and into a 4-cornered column, of which the stem or branch is the axis and support. (*Don's Mill.*) A diminutive creeping evergreen shrub. Lapland, Siberia, North America, from Canada to the north-west coast. Height 6 in. Introduced in 1810. Flowers white, tinged with red; March and April. Lodd.

3. C. LYCOPODIÖI'DES *D. Don.* The Club-Moss-like Cassiope.

1044. C. lycopodiöides.

*Identification.* D. Don in Ed. Phil. Journ., 17. p. 157.; Don's Mill., 3. p. 829.
*Synonyme.* Andrómeda lycopodiöides Pall. Fl. Ross. p. 55.
*Engravings.* Pall. Ross., l. c., t. 73. fig. 1.; and our *fig.* 1044.

*Spec. Char., &c.* Leaves ovate, adpressed, imbricated in 4 rows. (*Don's Mill.*) A diminutive, evergreen, moss-like, creeping shrub. Siberia, and the Island of St. Lawrence. Height 6 in. Introduced ?. Flowers red; June and July.

4. C. ERICÖÏDES *D. Don.* The Heath-like Cassiope.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 157.; Don's Mill., 3. p. 829.
*Synonyme.* Andrómeda ericöides *Pall Ross.* p. 56.
*Engravings.* Pall. Ross., l. c., t. 73. f. 3.; and our *fig.* 1045.

*Spec. Char., &c.* Leaves awned, setosely ciliated. Peduncles glabrous. (*Don's Mill.*) A diminutive creeping, evergreen shrub. Dahuria and Kamtschatka. Height 6 in. Introduced ?. Flowers not seen.

1045. C. ericöides.

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*C. fastigiàta* D. Don, a native of Nepal, and *C. Redówski* *G. Don*, a native of the East of Siberia, are described in our first edition, but they have not yet been introduced.

## GENUS VI.

CASSA'NDRA D. Don. THE CASSANDRA. *Lin. Syst.* Decándria Monogýnia.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 157.; Don's Mill., 3. p. 830.
*Synonyme.* Andrómeda sp. *Lin. and others.*
*Derivation.* The name of a daughter of Priam and Hecuba.

*Gen. Char.* *Calyx* 5-leaved, bibracteate at the base; leaflets imbricated at

the base. *Corolla* oblong, with a contracted 5-toothed mouth. *Stamens* 10, enclosed; filaments glabrous, simple at the base; cells of anthers elongated, and tubular at the apex, mutic. *Stigma* annular, with a 5-tubercled disk. *Capsule* with a loculicidal dehiscence. *Placenta* 5-lobed; lobes simple. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; acerose, on short petioles. *Flowers* axillary, on short pedicels, drooping, snow white, disposed in the manner of racemes at the tips of the branches. — Undershrubs, evergreen; natives of Europe, Asia, and North America.

1. C. CALYCULA'TA *D. Don.* The calyculated Cassandra.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 157.; Don's Mill., 3. p. 830.
*Synonyme.* Andrómeda calyculàta *Lin. Sp.* 565.
*Engravings.* Pall. Fl. Ross., 2. t. 71. f. i.; Bot. Cab., t. 1464.; and our *fig.* 1046.

1046. C. calyculàta.

*Spec. Char., &c.* Leaves elliptic-oblong, bluntish, obsoletely serrulated, rusty beneath. Racemes recurved, leafy. Bracteas of the calyx (these constitute the calyculus, or secondary and outer calyx, implied by the term calyculàta) broad, ovate, acuminate. Corollas oblong-cylindrical. (*Don's Mill.*) A low evergreen shrub. North America, from Canada to Virginia, and also in the North of Europe and Siberia. Height 1 ft. to 2 ft. Introd. in 1748. Flowers white; April and May.

1047. C. c. latifòlia.

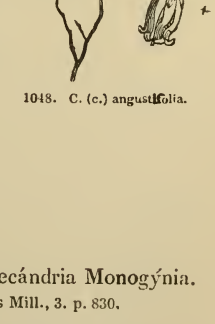
*Varieties.*

- *C. c.* 1 *ventricòsa* Sims Bot. Mag., t. 1286. — Corolla inflated.
- *C. c.* 2 *latifòlia* Lodd. Bot. Cab. t. 530., and our *fig.* 1047. — Leaf broad.
- *C. c.* 3 *nàna* Sims Bot. Mag. t. 862., Lodd. Bot. Cab. t. 826. — Dwarf.

2. C. (c.) ANGUSTIFO'LIA *G. Don.* The narrow-leaved Cassandra.

*Identification.* Don's Mill., 3. p. 830.
*Synonymes.* Andrómeda calyculàta β angustifòlia *Ait. Hort. Kew.* 2. p. 70.; A. angustifòlia *Pursh Fl. Amer. Sept.* 1. p. 291.; A. crispa *Desf. et Link.*
*Engraving.* Our *fig.* 1048.

*Spec. Char., &c.* Leaves linear-lanceolate, acute, the edges somewhat waved and revolute, the under surface rusty. Racemes recurved, leafy. Bracteas of calyx minute. Corollas oblong-ovate. (*Don's Mill.*) A low evergreen shrub. Carolina and Georgia, in open swamps. Height 2 ft. Introduced in 1748. Flowers white; April and May.


1048. C. (c.) angustifòlia.

## GENUS VII.

ZENO'BI*A* D. Don. THE ZENOBIA. *Lin. Syst.* Decándria Monogýnia.

*Identification.* D. Don in Edinb. New Phil. Journ., July, 1834; Don's Mill., 3. p. 830.
*Synonyme.* Andrómeda sp. *Michaux.*
*Derivation.* From *Zenobia*, a queen of Palmyra, distinguished for her virtue and learning.

*Gen. Char.* *Calyx* 5-lobed. *Corolla* campanulate; limb revolute, 5-lobed. *Stamens* 10; filaments glabrous, dilated at the base; cells of anthers

elongated, tubular, biaristate at the apex. *Stigma* truncate. *Capsule* with a loculicidal dehiscence. *Placenta* 5-lobed; lobes cuneated, thick, a little arched. *Seeds* angular. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous; scattered, dilated, with the margins usually toothed. *Flowers* racemose. *Pedicels* solitary or aggregate.—Undershrubs, deciduous; natives of North America.

1. Z. SPECIO'SA *D. Don.* The showy-*flowered* Zenobia.

*Identification.* D. Don in Edinb. New Phil. Journ., July, 1834; Don's Mill., 3. p. 830.
*Synonyme.* Andrómeda speciòsa *Michx. Fl. Bor. Amer.* 256.
*Engravings.* Bot. Cab., t. 551.; and our *fig.* 1049.

*Spec. Char., &c.* Leaves oval, obtuse, mucronate, crenate, or serrate, veiny. Flowers white, drooping, disposed in racemes. Branches in the flower-bearing part naked of leaves. (*Don's Mill.*) A low deciduous shrub. North Carolina, in swamps. Height 2 ft. to 3 ft. Introduced in 1800. Flowers large, white; June.

1049. Z. speciòsa.

1050. Z. s. nítida.

1051. Z. s. pulverulénta.

*Varieties.*

Z. *s.* 2 *nítida.* A. s. nítida *Pursh Fl. Amer. Sept.* i. p. 294.; A. *cassinefòlia Vent. Malm.* 79.; and our *fig.* 1050.—Leaves oblong-ovate, serrate, green on both surfaces. Flowers white.

Z. *s.* 3 *pulverulénta.* A. speciòsa pulverulénta *Pursh* l. c.; A. pulverulénta *Bartram Itin.* 476.; A. *cassinefòlia* β *Vent. Hort. Cels.* 60.; A. speciòsa var. γ glaúca *Wats. Dend. Brit.* t. 26.; A. dealbàta *Lindl. Bot. Reg.* t. 1010.; A. ovàta *Soland MS.* in *Herb. Banks.*; and our *fig.* 1051.—Leaves roundish-ovate, distantly crenate, covered with white powder, as are the branches. Flowers white.

## GENUS VIII.

LYO'NIA Nutt. THE LYONIA. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Nutt. Gen. Amer., 1. p. 268.; Ed. Phil. Journ., 17. p. 158.; Don's Mill., 3. p. 830.
*Synonyme.* Andrómeda sp. *Lin. and various authors.*
*Derivation.* In commemoration of *John Lyon*, an indefatigable collector of North American plants, who fell a victim to a dangerous epidemic amidst those savage and romantic mountains which had so often been the theatre of his labours.

*Gen. Char.* *Calyx* 5-parted. *Corolla* ovate or tubular, with a 5-toothed contracted mouth. *Stamens* enclosed; filaments flattened, dilated, very short, downy; cells of anthers membranous, dehiscing lengthwise, altogether mutic. *Style* robust, pentagonal, fusiform, thickened at bottom. *Stigma* simple, truncate. *Capsule* pentagonal, 5-celled, with a loculicidal dehis-

cence; margins of valves closed by 5 other external nerve valves. *Seeds* acicular, imbricated. (*Don's Mill.*)

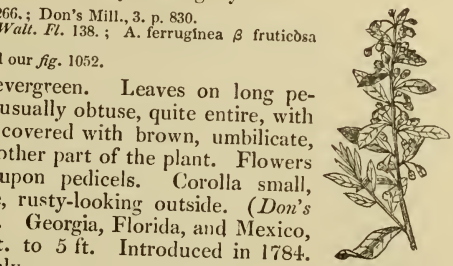
*Leaves* simple, alternate, exstipulate, evergreen or deciduous; usually membranous and downy. *Flowers* for the most part terminal, disposed in racemose panicles.—Shrubs, natives of North America.

A. *Leaves evergreen.*

1. L. FERRUGI'NEA *Nutt.* The rusty-looking Lyonia.

*Identification.* Nutt. Gen. Amer., p. 266.; Don's Mill., 3. p. 830.
*Synonymes.* Andrómeda ferrugínea *Walt. Fl.* 138.; A. ferrugínea β fruticòsa *Michx. Fl. Bor. Amer.* 1. p. 252.
*Engravings.* Vent. Malm., t. 80.; and our *fig.* 1052.

*Spec. Char., &c.* Shrubby, evergreen. Leaves on long petioles, coriaceous, obovate, usually obtuse, quite entire, with hardly revolute edges, and covered with brown, umbilicate, bran-like scales, as is every other part of the plant. Flowers axillary, 3 or 5 together, upon pedicels. Corolla small, ovate, globose, white inside, rusty-looking outside. (*Don's Mill.*) An evergreen shrub. Georgia, Florida, and Mexico, in pine woods. Height 3 ft. to 5 ft. Introduced in 1784. Flowers white; June and July.

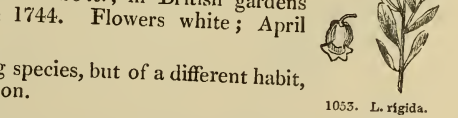

1052. L. ferrugínea.

2. L. RI'GIDA *Nutt.* The rigid-*leaved* Lyonia.

*Identification.* Nutt. Gen. Amer., 1. p. 266.; Don's Mill., 3. p. 830.
*Synonymes.* Andrómeda ferrugínea *Willd. Sp.* 2. p. 609.; A. ferrugínea I arboréscens *Michx. Fl. Bor. Amer.* 1. p. 252.; A. rígida *Pursh Fl. Amer. Sept.* 1. p. 292.
*Engravings.* Bot. Cab., t. 430.; and our *fig.* 1053.

*Spec. Char., &c.* Leaves crowded, coriaceous, rigid; their petioles short; their disks cuneate-lanceolate, acute, entire, convex, with revolute edges, and clothed with brown, umbilicate, bran-like scales, as is every other part of the plant. Flowers produced, in Britain, in April and May; axillary, several together. Corolla globose, white inside. Closely akin to L. ferrugínea; but the two are distinguishable by their different habits, especially by their times of flowering. (*Don's Mill.*) An arborescent evergreen shrub or low tree. Carolina and Florida, in barren sandy woods. Height 15 ft. to 20 ft.; in British gardens 3 ft. to 5 ft. Introduced in 1744. Flowers white; April and May. Capsule brown.

Nearly allied to the preceding species, but of a different habit, and flowering at a different season.

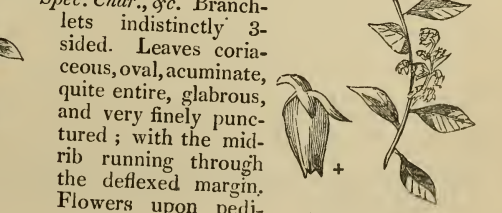

1053. L. rígida.

3. L. MARGINA'TA *D. Don.* The marginated-*leaved* Lyonia.

1054. L. marginàta.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 159.; Don's Mill., 3. p. 830.
*Synonymes.* Andrómeda marginàta *Du Ham. Arb.*; A. coriàcea *Willd. Sp.* 2. p. 613., *Ait. Hort. Kew.* 2. p. 70.; A. lùcida *Lam. Encyc.* 1. p. 157.; A. mariàna *Jacq. Icon. Rar.* 3. t. 465.
*Engravings.* Bot. Mag., t. 1095.; Jacq. Icon. Rar. t. 465.; and our *fig.* 1054.

*Spec. Char., &c.* Branchlets indistinctly 3-sided. Leaves coriaceous, oval, acuminate, quite entire, glabrous, and very finely punctured; with the midrib running through the deflexed margin. Flowers upon pedi-


1055. L. m. rubra.

cels, axillary, aggregate. Calyx of a dark red colour, its segments long, linear. Corolla cylindrical, pale red. (*Don's Mill.*) A small evergreen glabrous shrub. Carolina and Florida, in sandy forests. Height 2 ft. Introduced in 1765. Flowers white; June and July.

*Variety.*

♃ *L. m.* 2 *rùbra* Lodd. Bot. Cab. t. 672., and our *fig.* 1055.—Flowers deep red.

B. *Leaves deciduous.*

♃ 4. L. MARIA'NA *D. Don.* The Maryland Lyonia.

*Identification.* D. Don in Ed. Phil. Journ., 17. p. 159.; Don's Mill., 3. p. 831.
*Synonyme.* Andrómeda mariàna *Lin. Sp.* 564.
*Engravings.* Bot. Mag., t. 1579.; and our *fig.* 1056.

*Spec. Char., &c.* Leaves deciduous, oval, acutish at both ends, entire, glabrous, rather coriaceous, paler beneath. Flower-bearing branches almost leafless. Flowers on pedicels, aggregate, large, white, sometimes tinged with red. Calyx leafy. Corolla ovate-cylindrical. Capsule conoid. (*Don's Mill.*) A deciduous low shrub. New England to Florida, in woods and dry swamps, especially in sandy soil. Height 2 ft. or upwards. Introduced in 1736. Flowers large, white, sometimes tinged with red; May to August.

1056. L. mariàna.

1057. L. m. oblónga.

*Variety.*

♃ *L. m.* 2 *oblónga* Swt., and our *fig.* 1057., has oblong leaves.

♃ 5. L. RACEMO'SA *D. Don.* The racemose-*flowered* Lyonia.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 159. Don's Mill., 3 p. 831.
*Synonymes.* Andromeda racemòsa *Lin. Sp.* 564., *L'Hérit. Stirp.* 2. t. 13.; A. paniculàta *Walt. Car.* 138., *Gronov. Virg.* 67.
*Engravings.* L'Hérit. Stirp., 2. t. 13.; and our *fig.* 1058.

*Spec. Char., &c.* Leaves deciduous, oval-lanceolate, acute, serrulate, membranous, glabrous. Flowers white. Spikes terminal, secund, elongated, simple, or branched. Bracteas linear, acute, two at the base of a calyx, which is acute. Corolla cylindrical. (*Don's Mill.*) A deciduous shrub. Canada to Carolina, in bogs and swamps. Height 3 ft. to 4 ft. Introduced in 1736. Flowers white, sweet-scented; June and July

A very desirable species. According to Pursh it is reckoned one of the finest shrubs in America, from the graceful appearance of its flowers, and their fine odour.

1058. L. racemòsa.

♄ 6. L. ARBO'REA *D. Don.* The Tree Lyonia.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 159., Don's Mill., 3. p. 831.
*Synonyme.* Andrómeda arbòrea *Lin. Sp.* 565.
*Engravings.* Bot. Mag., t. 905.; and our *fig.* 1059.

*Spec. Char., &c.* Branches taper. Leaves deciduous, oblong, acuminate, serrate, with mu-

1059. L. arbòrea.

cronate teeth, glabrous, acid. Flowers in terminal panicles of many racemes. Corollas white, ovoid-cylindrical, downy. (*Don's Mill.*) A deciduous tree. Pennsylvania to Florida, in the valleys of the Alleghany Mountains. Height in America 40 ft. to 60 ft.,; in England 10 ft. to 20 ft Introduced in 1752. Flowers white; June and July.

The leaves have a very pleasant acid taste, from which the species has been called the sorrel-tree. In America they are frequently made use of by hunters in the mountains to alleviate thirst.

♃ 7. L. PANICULA'TA *Nutt.* The panicled-*flowered* Lyonia.

1060. L. paniculàta.

*Identification.* Nutt. Gen. Amer., 1. p. 266.; Don's Mill., 3. p. 831.
*Synonyme.* Andrómeda paniculàta *Lin. Sp.* 564.
*Engravings.* L'Hérit. Stirp. Nov., 2. t. 12.; Dend. Brit., t. 37.; and our *fig.* 1060.

*Spec. Char., &c.* Downy. Leaves deciduous, obovate-lanceolate, narrowed to both ends, almost entire, the upper surface of the older leaves nearly glabrous. Flower-bearing branches terminal, panicled, nearly naked of leaves. Flowers small, in peduncled racemes. Corollas nearly globose, downy, white. (*Don's Mill.*) A deciduous shrub. Canada to Carolina, in all swamps and woods. Height 3 ft. to 4 ft. Introduced in 1748. Flowers small, white; June and July.

♃ 8. L. SALICIFO'LIA *Wats.* The Willow-leaved Lyonia.

*Identification.* Wats. Dend. Brit., t. 38.
*Engravings.* Dend. Brit., t. 38.; and our *fig.* 1061.

*Spec. Char., &c.* Leaves alternate, long-lanceolate, acuminate, scarcely serrulate, shining, strewed with a few short gland-like hairs. Racemes of flowers compound, alternately sessile on the terminal branches. Flowers white, 1-petaled, globular, contracted at the mouth. (*Wats.*) A desirable species, nearly allied to L. paniculàta, but which is less remarkable in point of floral beauty, than for its fine shining foliage. Native country ?. Height 3 ft. to 4 ft. Flowers white; June and July.

1061. L. salicifòlia.

1062. L. (p.) frondòsa.

♃ 9. L. (P.) FRONDO'SA *Nutt.* The branchy Lyonia.

*Identification.* Nutt. Gen. Amer., 1. p. 267.; Don's Mill., 3. p. 831.
*Synonyme.* Andrómeda frondòsa *Pursh Fl. Amer. Sept.* 1. p. 295.
*Engraving.* Our *fig.* 1062. from a specimen in Dr. Lindley's herbarium.

*Spec. Char., &c.* Densely villose with whitish hairs. Leaves deciduous, oblong or oblong ovate, blunt or acutish, often rusty, prominently veined; the lateral margins revolute, entire, and rough. Flowers white, in a terminal leafly panicle. Corollas globose, hispid or downy. (*Don's Mill.*) An upright deciduous shrub. Virginia and Carolina. Height 3 ft. Introduced in 1806. Flowers white; May and June.

♃ 10. L. (P.) MULTIFLO'RA *Wats.* The many-flowered Lyonia.

*Identification.* Wats. Dend. Brit., t. 128.; Don's Mill., 3. p. 831.
*Engravings.* Dend. Brit., t. 128.; and our *fig.* 1063.

*Spec. Char., &c.* Leaves deciduous, narrow, lanceolate, serrate, sprinkled with hair-like atoms. Flowers numerous, small, white, disposed in terminal pa-

1063. L. (p.) multiflòra.

nicles, that are composed of numerous grouped racemes. (*Don's Mill.*) An upright deciduous shrub. North America. Height 2 ft. Introduced in 1812. Flowers white; July.

11. L. (p.) CAPREÆFO'LIA *Wats.* The Goat-Willow-leaved Lyonia.

*Identification.* Wats. Dend. Brit., t. 127.; Don's Mill., 3. p. 831.
*Engravings.* Dend. Brit., t. 127.; and our *fig.* 1064.

*Spec. Char., &c.* Leaves deciduous, coriaceous, elliptic, with a short acuminate termination, serrulate, and sprinkled with short fleshy hairs. Flowers disposed in racemes and corymbs that are mixed, lateral, and leafy. Corollas rather silky; globular, coarctate. (*Don's Mill.*) An erect deciduous shrub. North America. Height 2 ft. to 3 ft. Introduced in 1812. Flowers white; July.

1064. L. (p.) capreæfòlia.

## GENUS IX.

### LEUCO'THOE D. Don. THE LEUCOTHÖE. *Lin. Syst.* Decándria Monogýnia.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 159.; Don's Mill., 3. p. 831.
*Synonyme.* Andrómeda sp. of previous authors.
*Derivation.* *Leucothöe* was a beautiful nymph, beloved by Apollo; who was buried alive by her father when he discovered her amour, and changed into the tree that bears the frankincense by her lover. (*Ovid. Met.*, iv. 196.) *Leucothöe* was also a name given to Ino after she was changed into a sea deity.

*Gen. Char.* *Calyx* 5-leaved; leaves imbricated at the base. *Corolla* tubular, 5-toothed. *Stamens* enclosed; filaments dilated, flattened, downy; cells of anthers short, truncate, mutic. *Stigma* simple, capitate. *Capsule* with a loculicidal dehiscence. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; coriaceous, dentately spinulose. *Flowers* white, racemose, axillary, or terminal.—Shrubs, evergreen, low; natives of North America.

1. L. AXILLA'RIS *D. Don.* The axillary-*racemed* Leucothöe.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 159.; Don's Mill., 3. p. 832.
*Synonymes.* Andrómeda axillàris *Solander* in *Hort. Kew.* 2. p. 89.; A. Catesbæ'i Walt. Car. fasc. No. 2., on the authority of Mr. Gordon.
*Engraving.* Our *fig.* 1065.

*Spec Char., &c.* Leaves oblong or oval, acuminate; in the outward part of its length cartilaginous in the margin, and serrulate with mucronate teeth; upper surface glabrous, under surface covered with glandular hairs. Young branches clothed with powdery down. Flowers white, in short, spicate, sessile, axillary racemes, attended by scaly bracteas. Corolla ovate cylindrical. Filaments ciliated, very short, Capsule depressed, globose. (*Don's Mill.*) A low evergreen shrub. Virginia to Georgia, on mountains. Height 2 ft. to 3 ft. Introduced in 1765. Flowers white; May and June.

1065. L. axillàris.

*Variety.*

☞ *L. a. 2 longifòlia.* Andrómeda longifòlia *Pursh Sept.* i. p. 293., *Sims Bot. Mag.* t. 2357.; A. Wálteri Willd. — Leaves linear-lanceolate, very long. (*Don's Mill.*)

☞ 2. L. SPINULO'SA *G. Don.* The spinulose-*toothed-leaved* Leucothöe.

1066. L. spinulòsa.

*Identification.* Don's Mill., 3. p. 832.
*Synonymes.* Andrómeda spinulòsa *Pursh Sept.* 1. p. 293.; ? A. Catesbæ'i Walt. Fl. Car. p. 137.
*Engravings.* Bot. Mag., t. 1955.; Bot. Cab., t. 1320.; and our *fig.* 1066.

*Spec. Char., &c.* Leaves glabrous, coriaceous, ovate-oblong, rounded at the base, gradually narrowed to the tip, acuminate, serrulate with teeth that are spinulose in some degree. Flowers white, disposed unilaterally and rather loosely, in subspicate, axillary, subsessile racemes, and attended by scaly bracteas. Corolla short, ovate-cylindrical. It resembles L. axillàris *D. Don* in several respects. (*Don's Mill.*) A low evergreen shrub. Lower Carolina. Height 2 ft. Introduced in 1793. Flowers white; May and June.

☞ 3. L. ACUMINA'TA *G. Don.* The acuminate-*leaved* Leucothöe.

*Identification.* Don's Mill., 3. p. 832.
*Synonymes.* Andrómeda acuminàta *Ait. Hort. Kew.* 2. p. 70.; A. lùcida *Jacq. Icon. Rar.* 1. t. 79.; A. populifòlia *Lam. Encycl.* 1. p. 195.; A. reticulàta *Walt. Fl. Car.* 137.; A. formosíssima *Bartr.*; A. laúrina *Michx. Fl. Amer. Bot.* 1. p. 253.; Pipe-stem-wood, *Amer.*
*Engravings.* Exot. Bot., t. 89.; Jacq. Icon. Rar., i. t. 79.; and our *fig.* 1067.

*Spec. Char., &c.* Glabrous. Stems hollow. Leaves ovate-lanceolate, gradually narrowed to the tip, entire or unequally serrate, shining, nettedly veined, coriaceous. Flowers white, numerous, upon pedicels, drooping; disposed in racemes that are axillary, very short, corymbose, and nearly naked. Corolla cylindrically ovate. (*Don's Mill.*) An erect evergreen shrub. Georgia and Florida, in sandy swamps. Height 2 ft. to 3 ft. Introd. 1765. Flowers numerous, white; July and August.

1067. L. acuminàta.

☞ 4. L. FLORIBU'NDA *D. Don.* The numerous-flowered Leucothöe.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 159.; Don's Mill., 3. p. 832.
*Synonyme.* Andrómeda floribúnda *Lyon Herb. Sept.* 1. p. 293.
*Engravings.* Bot. Reg., t. 807.; Bot. Mag., t. 1566.; and our *fig.* 1068.

1068. L. floribúnda.

*Spec. Char., &c.* Glabrous. Leaves ovate oblong, acute, finely serrulate, appressedly ciliate, coriaceous. Flowers white, numerous; disposed unilaterally in racemes that are axillary and terminal, and constitute panicles. Pedicels with 2 bracteas. (*Don's Mill.*) An erect evergreen shrub. Georgia, on mountains. Height 2 ft. to 3 ft. Introduced in 1812. Flowers white; May and June.

Extremely difficult to propagate, therefore rare. Prolific in flowers, when covered with them very beautiful. Layers, which do not root under two or three years.

☞ 5. L. SPICA'TA *G. Don.* The spicate-*racemed* Leucothöe.

*Identification.* Don's Mill., 3. p. 832.
*Synonyme.* Andrómeda spicàta *Wats. Dend. Brit.* t. 36.
*Engravings.* Wats. Dend. Brit., t. 36.; and our *fig.* 1069.

1069. L. spicàta.

*Spec. Char., &c.* Glabrous, except that the branchlets are beset with short white hairs. Leaves elliptical-lanceolate, acute, ovate, or taper at the base, serrated. Flowers white, disposed unilaterally in long lateral and terminal racemes. (*Don's Mill.*) An erect evergreen shrub. Canada to Florida. Height 2 ft. Introduced in ? 1812. Flowers white; June.

## Genus X.

### PIERIS *D. Don.* The Pieris. *Lin. Syst.* Decándria Monogýnia.

*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 159.; Don's Mill., 3. p. 832.
*Synonyme.* Andrómeda sp. *Wallich.*
*Derivation.* *Pieris*, a general appellation of the Muses, who were called Pierides, from their birthplace, Pieria, in Thessaly.

*Gen. Char.* *Calyx* deeply 5-parted. *Corolla* tubular or ovate, with a contracted, 5-toothed, revolute border. *Stamens* enclosed; filaments dilated, bisetose at top; cells of anthers short, incumbent, dehiscing lengthwise. *Style* robust, pentagonal. *Stigma* truncate. *Capsule* with a loculicidal dehiscence. *Seeds* scobiform. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, evergreen; coriaceous. *Flowers* drooping, terminal, racemose.— Shrub or low tree, evergreen, native of Nepal.

♃ 1. P. ovalifo'lia *D. Don.* The oval-leaved Pieris.

*Identification.* Ed. Phil. Journ., 17. p. 159.; Don's Mill., 3. p. 832
*Synonymes.* Andrómeda ovalifólia *Asiat. Res.* 13. p. 391.; A. capricida *Hamilton MSS.*
*Engravings.* Asiat. Res., 13. p. 391.; and our *fig.* 1070.

*Spec. Char., &c.* Leaves oval, acuminated, 2 in. to 4 in. long, 1 in. to 2 in. broad, rounded at the base, entire, downy when young. Flowers upon downy pedicels, and disposed unilaterally in lateral, leafy, lengthened racemes, many in a raceme. Racemes numerous. Segments of calyx ovate and acute. Corolla oblong, downy, pale flesh-colour. (*Don's Mill.*) An evergreen low tree. Nepal, at Suembu and Sirinagur. Height 20 ft. to 40 ft.; in British gardens 2 ft. to 3 ft. Introduced in 1825. Flowers white; May.

1070. P. ovalifólia.

## Genus XI.

### PHYLLO'DOCE Sal. The Phyllodoce. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Sal. Par., t. 36.; D. Don in Ed. Phil. Journ., July, 1834; Don's Mill., 3. p. 832.
*Synonymes.* Andrómeda sp. *L.*; Menziè*sia* sp. *Swartz, Smith.*
*Derivation.* *Phyllodoce*, the name of one of the nymphs of Cyrene, daughter of the river Peneus.

*Gen. Char.* *Calyx* 5-parted. *Corolla* globose, with a contracted 5-toothed mouth. *Stamens* 10, enclosed; filaments slender, glabrous; cells of anthers short, truncate, mutic. *Stigma* peltate, 5-tuberculate. *Capsule* 5-celled, with a septicidal dehiscence. *Seeds* compressed, shining. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; linear, obtuse, spreading. *Flowers* terminal, solitary, or many together in a kind of umbel.— Shrubs, evergreen, very diminutive. Natives of the North of Europe, Asia, and North America.

### 1. P. TAXIFO'LIA *Sal.* The Yew-leaved Phyllodoce.

*Identification* Sal. Par., t 36.; Don's Mill., 3. p. 833.

1071. P. taxifòlia.

*Synonymes.* Menziè*sia* cærùlea *Swz.* in *Lin. Soc. Trans.* 10. p. 377.; Andróme*da* cærùlea *Lin. Sp.* p. 563.; A. taxifòlia *Pall. Fl. Ross.* p. 54; Erica cærùlea *Willd. Sp.* 2 p 393.
*Engravings.* Eng. Bot., t. 2469.; Bot. Cab., t. 164.; and our *fig.* 1071.

*Spec. Char., &c.* Leaves with denticulated margins. Peduncles aggregate, glanded. Segments of the calyx acuminate. Anthers one third of the length of the filaments. Corolla blue or purple; red, on the authority of Pursh, in the species as found in North America. (*Don's Mill.*) A low, trailing, evergreen, heath-like shrub. Europe, North America, and Asia; in Scotland on dry heathy moors, rare. Height 6 in. Flowers red; June and July.

### 2. P. EMPETRIFO'RMIS *D. Don.* The Empetrum-like Phyllodoce.

*Identification.* D. Don in Ed. Phil Journ., July, 1834; Don's Mill., 3. p. 833.
*Synonyme.* Menziè*sia* empetriformis *Smith* in *Lin. Soc. Trans.* 10. p. 280.
*Engravings.* Bot. Mag., t. 3176.; and our *fig.* 1072.

1072. P. empetriformis.

*Spec. Char., &c.* Leaves with denticulated margins. Peduncles aggregate, sparingly glanded. Segments of the calyx ovate, obtuse. Corolla pale red. Anthers the length of the filaments. (*Don's Mill.*) A low, trailing, heath-like evergreen shrub. North America. Height 6 in. Introduced in 1810. Flowers pale red; June and July.

## GENUS XII.

## BRYA'NTHUS *Gmel.* THE BRYANTHUS. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Gmel. Sib., 4. p. 133. t. 57. f. 3.; Phil. Journ., 17. p. 160.; Don's Mill., 3. p. 833.
*Synonymes.* Andróme*da* sp. *Lin.*; Menziè*sia* Swartz and Pursh; *Erica* sp. *Thunb.*
*Derivation.* From *bryon*, a moss, and *anthos*, a flower.

*Gen. Char., &c.* *Calyx* 5-leaved, imbricate. *Corolla* deeply 5-parted, spreading. *Stamens* 10, shorter than the corolla; filaments flattened, glabrous; cells of anthers short, mutic, or awned behind, dehiscing by a terminal hole. *Stigma* obtuse. *Capsule* 5-celled, with a septicidal dehiscence, many-seeded. *Seeds* ovoid, shining, with a keeled raphe. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; small, crowded, spreading, flattish. *Flowers* terminal, solitary, or somewhat racemose.—Shrubs, small, trailing, evergreen. Natives of Asia and North America; rare in British gardens.

### 1. B. GME'LINI D. Don. Gmelin's Bryanthus.

*Identification.* D. Don in Ed. Phil. Journ., 17. p. 160.; Don's Mill., 3. p. 833.
*Synonymes.* Menziè*sia* bryántha *Swartz* in *Lin. Trans.* 10. p. 378.; Andróme*da* bryántha *Lin. Mant.* 238.; Erica bryántha *Thunb. Diss.* No. 8.; Bryánthus rèpens serpyllifòlia flòre ròseo *Gmel. Sib.* 4. p 133. t. 57. f.
*Engravings.* Pall. Fl. Ross., p. 57. t. 74. f. 1.; and our *fig.* 1073.

*Spec. Char., &c.* Branchlets pruinose. Leaves with denticulated margins. Peduncles glandular, many-flowered. Anthers mutic. Style filiform. (*Don's Mill.*) A trailing, moss-like, evergreen, diminutive shrub. Kamtschatka, about Port Ochotsk, and of Behring's Island, where it grows in thick masses covering a great extent of surface, like wild thyme; and various other

1073. B. Gmèlini.

places, in mosses and bogs, with *E'mpetrum*. Height 6 in. Introduced ?. Flowers red; June.

2. B. Ste'llerI D. Don. Steller's Bryanthus.

*Identification.* D. Don, l. c.; Don's Mill., 3. p. 833.
*Synonymes.* Andrómeda Stelleriàna Pall. Fl. Ross. p. 58. t. 74. f. 2.; Menziè*sia* empetriformis *Pursh Fl. Amer. Sept.* 1. p. 265., but not of others.
*Engravings.* Pall. Fl. Ross., p. 58. t. 74. f. 2.; and our *fig.* 1074.

1074. B. Stéllerı.

*Spec. Char., &c.* Branchlets glabrous. Leaves with obsolete crenulated edges. Flowers solitary, nearly sessile. Anthers 2-horned behind. Style conical. Flowers pale red. (*Don's Mill.*) A trailing diminutive evergreen shrub. North-west coast of America, on the Rocky Mountains, and near the mouth of the Columbia River, and in the Island of Sitcha. Height 6 in. Introduced ?. Flowers pale red, larger than in B. Gmèlini; June.

## Genus XIII.

DABŒ C*IA* D. Don. The Dabœcia. *Lin. Syst.* Octándria Monogýnia.

*Identification.* D. Don in Edinb. New. Phil. Journ., 17. p. 160.; Don's Mill., 3. p. 833.
*Synonymes.* *E*rica sp. *Lin.*; Andrómeda sp. *Lin.*; Menziè*sia* sp. *Juss.*
*Derivation.* D. polifòlia *D. Don* is called, in Ireland, St. *Dabeoc's* heath.

*Gen. Char.* *Calyx* 4-parted. *Corolla* oval, ventricose; limb 4-toothed. *Stamens* 8, enclosed; filaments dilated, glabrous. *Anthers* linear, sagittate at the base; cells of anthers parallel, loosened at the apex, dehiscing lengthwise. *Stigma* simple, truncate. *Capsule* 4-celled, with a septicidal dehiscence. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; acerose, elliptic, flat, clothed with white tomentum beneath. *Flowers* terminal, racemose, purple. — A shrub, evergreen, diminutive, bushy; native of Ireland and the Pyrenees.

1. D. polifo'lia *D. Don.* The Poly-leaved Dabœcia.

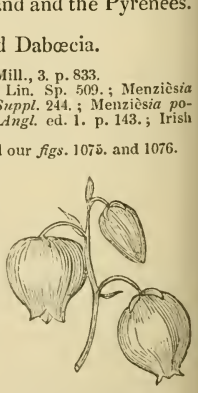
*Identification.* D. Don in Edinb. New Phil. Journ., 17. p. 160.; Don's Mill., 3. p. 833.
*Synonymes.* Andrómeda Dabœ'*cia* Lin. Syst. 406.; *E*rica Dabœ'*cia* Lin. Sp. 509.; Menziè*sia* Dabœ'*cia* Dec. Fl Gall. 674.; *E*rica hibérnica, &c., *Raii Hist.* 3. *Suppl.* 244.; Menziè*sia* polifòlia *Juss. Ann. Mus.* 1. p. 55.; *V*accinium cantábricum *Huds. Fl. Angl.* ed. 1. p. 143.; Irish Whorts, Cantabrian Heath, St. Dabeoc's Heath.
*Engravings.* Eng. Bot., t. 35.; Sweet's Brit. Fl.-Gard., 2. s. t. 276.; and our *figs.* 1075. and 1076.

1075. D. polifòlia.

*Spec. Char., &c.* Leaves elliptic, flat, clothed with white tomentum beneath. Flowers in terminal racemes. (*Don's Mill.*) A bushy, heath-like, evergreen undershrub. Ireland and the Pyrenees, on the sides of mountains and dry heaths, where it is very ornamental. Height 1 ft. to 2 ft. Flowers purple; June to September.

*Variety.*

D. p. 2 *flòre álbo* Swt. Brit. Fl.



1076. D. polifòlia.

Gard. 2d ser. t. 276. — Flowers white. Discovered in Cunnemara, in 1820, growing along with the common variety.

## GENUS XIV.

*A'*RBUTUS *Camer.* THE ARBUTUS, *or* *STRAWBERRY TREE.* *Lin. Syst.* Decándria Monogýnia.

*Identification.* Camer. Epit., p. 163.; Don's Mill., 3. p. 834.
*Synonymes.* Andráchne *Clus.*; *A'*rbutus sp. *Lin. Gen.* No. 750.; Arbousier, *Fr.*; Sandbeere, *Ger.*; Abbatro, *Ital.*
*Derivation.* From *ar bois*, austere bush, Celtic; in allusion to the austere quality of the fruit.

*Gen. Char.* *Calyx* 5-parted. *Corolla* globose, or ovately campanulate; limb 5-cleft, reflexed. *Stamens* 10, enclosed. *Anthers* compressed on the sides, dehiscing by two pores at the apex, fixed by the back beneath the apex, where they are furnished with two reflexed awns. *Ovarium* seated on a hypogynous disk, or half-immersed in it, 5-celled; cells many-seeded. *Style* 1. *Stigma* obtuse. *Berry* nearly globose, granular. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; serrated or entire. *Flowers* in racemes, terminal, panicled, pedicellate, bracteate, with white or flesh coloured corollas. — Trees and shrubs, evergreen; natives of Europe, Asia, and America.

They are of easy culture, in sandy loam, or loam and peat; and they are readily propagated, the common kinds by layers, cuttings, or seeds, and the rarer and tenderer sorts by grafting on those that are more common and hardy. All the species have the outer bark more or less tinged with red, and scaly.

♠ ♀ 1. *A. U'*NEDO *L.* The Unedo Arbutus, *or* *Strawberry Tree.*

*Identification.* Lin. Sp., 566.; Don's Mill., 3. p. 134.
*Synonymes.* L'Arbousier commun, Arbousier des Pyrénées, or Fraisier en Arbre, *Fr.*; Erdbeereartige Sandbeere, *Ger.*; Komaä, *Mod. Greek.*
*Engravings.* Eng. Bot., t. 2377.; and our *fig.* 1077.

*Spec. Char., &c.* Arboreous. Branchlets clothed with glandular hairs. Leaves oblong-lanceolate, glabrous, serrulated. Flowers nodding. Peduncles smooth. (*Don's Mill.*) An evergreen shrub or low tree. South of Europe, Palestine, and Ireland, in the county of Kerry, near the Lake of Killarney, on barren limestone rocks, where the country people eat the fruit. Height 10 ft. to 20 ft. Flowers white; September and December. Fruit large, scarlet; ripe in December.

1077. *A'*rbutus *U'*nedo.

*Varieties.*

♠ ♀ A. U. 1 *álbus* Ait. Hort. Kew. ii. p. 71. — Flowers white. This is the common sort, raised in nurseries by seed. The flowers are sometimes of a greenish or yellowish white, and sometimes reddish. The colour of the fruit, also, varies in a similar manner.

♠ ♀ A. U. 2 *rùber* Ait. Hort. Kew. ii. p. 71. — Flowers reddish. This is the handsomest variety in cultivation. It is commonly propagated by layers, or by grafting on the species, and sometimes by cuttings.

♠ A. U. 3 *plènus* Ait. Hort. Kew. ii. p. 71. — Flowers semidouble.

- A. U. 4 *schizopétalus.* — Corolla cut into more than the number (5) of segments constant to the corolla of the species. Hort. Soc. Garden.
- A. U. 5 *integrifólius.* (Sims Bot. Mag., t. 2319. and our *fig.* 1978.) — Leaves entire. Hort. Soc. Gard.
- A. U. 6 *críspus.* — Leaves curled and cut, and the plant dwarf.
- A. U. 7 *salicifólius* — Leaves narrow, very distinct.

1978. *A. U.* integrifólius.

The common arbutus will grow to the height of 20 or 30 feet; but, unless pruned to a single stem, it assumes more the character of a huge bush than that of a regular-headed tree. The rate of growth, when young and properly treated, will average 1 ft. a year for the first 10 years; and the plant is of considerable durability. It will thrive in any tolerably free soil; though it seems to grow fastest, and attain the largest size, in deep sandy loam. It will grow either in open or sheltered situations, but does not thrive under the shade of trees. The species is readily propagated by seeds, which should be sown, as soon as they are separated from the pulp of the fruit, in pots of light, rich, sandy soil, or heath mould, and then placed in the shade, where they can be protected from the frost and the sun. Plants raised from seed do not generally flower till 5 or 6 years old. The double and the scarlet-flowered, and all the other varieties, are propagated by layers, by grafting, or by cuttings of the wood in a growing state, taken off in July, and treated like cuttings of heath.

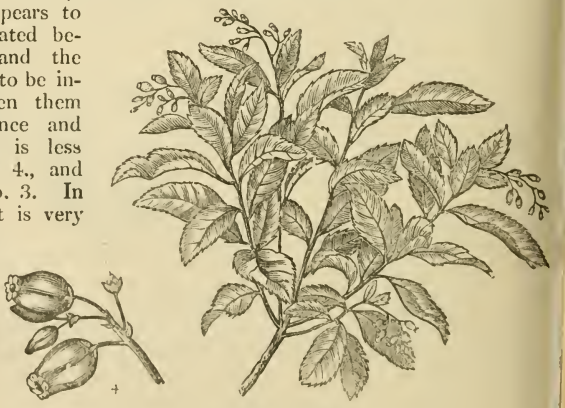
### 2. *A.* HY'BRIDA *Ker.* The hybrid Arbutus, *or Strawberry Tree.*

*Identification.* Ker Bot. Reg., t. 619.; Don's Mill., 3. p. 834.
*Synonyme.* *A. andrachnóides Link Enum.* 1. p. 395.
*Engravings.* Bot. Reg., t. 619.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *figs.* 1079. and 1080.

1079. *A.* hybrida.

*Spec. Char., &c.* Branchlets pilose. Leaves oblong, acute, serrated, glabrous. Panicle terminal, pendulous, downy. Flowers white. Calyx glabrous. (*Don's Mill.*) An evergreen shrub or low tree. Originated in gardens about 1800. Height 10 ft. to 20 ft. Flowers white; September to December. Fruit scarlet; rarely produced.

This hybrid appears to have been originated between the first and the third species, and to be intermediate between them both in appearance and constitution. It is less tender than No 4., and more so than No. 3. In British gardens it is very ornamental from its foliage and flowers; but, as might be expected, it rarely perfects fruit. Propagated by grafting on the common species.


1980. *A.* hybrida.

*Variety.*

♀ ✱ A. *h.* 2 *Milleri* (*A.* Milleri Mayes in West of England Journal of Science and Lit., Jan. 1835; and Gard. Mag., xi. p. 259.) was raised from seed in the Bristol Nursery, from the scarlet-flowered variety of *A. U'nedo* and *A. Andráchne.* The flowers are of a delicate pink, the leaves are large, and the plant vigorous.

Apparently a hybrid between *A. U'nedo* and *A. Andráchne.* It grows as rapidly as the *A. U'nedo*, forms fully as large a tree, is more beautiful in its flowers, which are in larger panicles, and is nearly as hardy.

♀ ✱ 3. *A. ANDRA'CHNE L.* The Andrachne Arbutus, *or Strawberry Tree.*

*Identification.* Lin. Sp., 566.; Don's Mill., 3. p. 834.
*Synonymes.* *A.* integrifòlia *Lam.*; *Andráchne* Theophrásti Clus. Hist. 1. p. 48.; *Andráchne Park. Theatr.* 1490. f. 2. This is the Adrachnē of Theophrastus; and it is called Adrachla in modern Greek.
*Engravings.* Bot. Reg., t. 113.; Bot. Mag., t. 2024.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *figs.* 1081. and 1082.

*Spec. Char., &c.* Leaves oblong, bluntish, entire in some, a little serrated in others, glabrous. Panicles terminal, erect, clothed with viscid down. Flowers

1081. *A. Andráchne.*

greenish white. Fruit like that of *A. U'nedo.* (*Don's Mill.*) An evergreen shrub or low tree. Greece, Asia Minor, and Tauria. Height 20 ft. to 30 ft. Introduced in 1724. Flowers greenish white; March and April. Fruit like that of *A. U'nedo*; ripe in December.

1082. *A. Andráchne.*

*Variety.*

♀ ✱ A. *A.* 2 *serratifòlia*, *A.* serratifòlia *Nois.*, (Lodd. Bot. Cab., t. 580.; and our *fig.* 1083.) has the leaves serrated, and narrower than those of the species. The flowers are yellowish, and disposed in rather large terminal clusters.

1083. *A. A.* serratifòlia.

It differs from the common arbutus in having much longer leaves, smooth, coriaceous, and shining, and but slightly if at all serrated, and polished; but the outer bark cracks, and peels off in very thin

papery layers annually, by which alone it is readily distinguished from the common arbutus. The plants, when young, are somewhat tender; but, it kept in pots till 2 or 3 feet high before they are planted out, they will endure the winters in the neighbourhood of London without any protection; and will grow nearly as rapidly as the common arbutus, becoming eventually much larger and finer trees.

♃ ♠ 4. *A.* PROCE'RA *Douglas.* The tall Arbutus, *or Strawberry Tree.*

*Identification.* Lindl. Bot. Reg., t. 1573.
*Engravings.* Bot. Reg., t. 1573.; and our *fig.* 1084.

*Spec. Char., &c.* Leaves oblong, serrated, or entire, smooth; petioles smooth. Racemes terminal, panicles secund. (*Lindl.*) A small evergreen tree; in British gardens an evergreen bush, with fine broad glossy foliage. North-west coast of North America. Height 10 ft. to 20 ft. Introduced in 1825. Flowers delicate, greenish white; May. Fruit like that of the common arbutus.

1084. *A.* procèra

Nearly allied to *A. Andráchne*; but differing in the form and serratures of its leaves, and in the form and size of its flowers. The root shoots are covered with scattered bristles, as also are the leaf stalk, and the leaves themselves on such shoots are very strongly serrated.

♃ *A.* TOMENTO'SA *Pursh.* The downy Arbutus, *or Strawberry Tree.*

*Identification.* Pursh Fl. Amer. Sept., 1. p. 282.; Don's Mill., 3. p. 835.
*Synonyme.* *Arctostáphylos tomentòsa Lindl. Bot. Reg.*, t. 1791.
*Engravings.* Bot. Mag., t. 3320.; Bot. Reg., t. 1791.; and our *fig.* 1085.

1085. *A.* tomentòsa.

*Spec. Char., &c.* The whole plant, except the flowers, downy while young. Branches hispid. Leaves with short and hispid petioles, midribs hispid, and disks oval, acute, subcordate at the base, and clothed with white tomentum beneath. Flowers bracteated, disposed in somewhat headed racemes, which are axillary, and shorter than the leaves. Corolla campanulately pitcher-shaped, pure white. (*Don's Mill.*) A low evergreen shrub. West coast of North America. Height 3 ft. to 4 ft. Introduced in 1826. Flowers pure white; Dec.

*Variety.*

♃ A. *t.* 2 *nùda* Hook. et Arnott in Beech. Voy. Pt. Bot. 144., Hook. Fl. Bor. Amer. 2. t. 129. f. 4. — The plant is quite destitute of long stiff hairs.

♃ 6. *A.* DENSIFLO'RA *H. B. et Kunth.* The densely fld Arbutus, *or Strawberry Tree.*

*Identification.* H. B. et Kunth Nov. Gen. Amer., 3. p. 280. t. 260.; Don's Mill., 3. p. 835.
*Engravings.* H. B. et Kunth Nov. Gen. Amer., 3. p. 280. t. 260.; and our *fig.* 1086.

*Spec. Char., &c.* Branches angular, pilose. Leaves 4 in. to 5 in. long; their petioles long, pilose; their disks oblong, acute, sharply toothed, coriaceous, glabrous above, and shining beneath, clothed with brown-tinged down, and the middle nerve with long rusty-hued hairs. Flowers crowded, disposed

1086. *A.* densiflòra.

in panicles that are terminal and composed of approximate racemes. Pedicels furnished with 3 bracteas at the base. Corolla oval, white. Filaments dilated and pilose at the base. (*Don's Mill.*) A robust shrub or low tree. Mexico, on the eastern declivities between La Plata and Xalapa. Height 20 ft.; in British gardens 5 ft. to 10 ft. Introduced in 1826. Flowers white; December.

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*Other Species apparently hardy.* — A. *speciòsa* Dickson, Gard. Mag. 1840, p. 4. Leaves lanceolate, finely serrated, glaucous on the under side, and bright green above. Probably a large bush or small tree. Mexico, 1837. Another species, and also A. *nepalénsis* Royle, have been raised in the H. S. Garden.

## Genus XV.

ARCTOSTA'PHYLOS *Adans.* The Bearberry. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Adans. Fam.; Don's Mill., 3. p. 835.
*Synonymes.* U'va-úrsi *Dod.*, *Tourn.*; *A'rbutus* sp. *Lin.*
*Derivation.* From *arktos*, a bear, and *staphulē*, a grape.

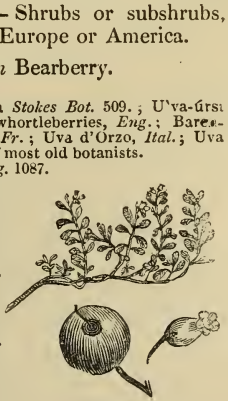
*Gen. Char. Calyx* 5-parted. *Corolla* globose or ovate-campanulate; limb 5-cleft, reflexed. *Stamens* 10, enclosed; filaments dilated at the base, and pilose. *Anthers* compressed at the sides, dehiscing by two pores at the apex, fixed by the back beneath the middle, where they are furnished with two reflexed horns. *Ovarium* seated on the hypogynous disk, or half-immersed in it, usually 5-celled, rarely 6—9-celled; cells 1-seeded. *Styles* 1 *Stigma* obtuse. *Drupe* nearly globose. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen or deciduous; entire or serrated. *Flowers* in terminal racemes, pedicellate bracteate. *Corollas* white or flesh-coloured. *Drupes* red or black. — Shrubs or subshrubs, deciduous or evergreen, low or trailing; natives of Europe or America.

1. *A.* U'va-u'rsi *Spreng.* The *common* Bearberry.

*Identification.* Spreng. Syst., 2. p. 827.; Don's Mill., 3. p. 835.
*Synonymes.* *A'rbutus* U'va-úrsi *Lin. Sp.* 566.; *A'rbutus buxifolia* *Stokes Bot.* 509.; U'va-úrsi buxifolia *Sal.* in *Gray's Arr.* 2. p. 400.; Bearberries, and Bear-whortleberries, *Eng.*; Bärentraube, or Barenbeere, *Ger.*; Beerenduuif, *Dutch*; la Basserole, *Fr.*; Uva d'Orzo, *Ital.*; Uva de Oso, *Span.*; Uva de Urso, *Port.*; and Uva Ursi in the works of most old botanists.
*Engravings.* Engl. Bot., t. 714.; Schmidt Baum., t. 138.; and our *fig.* 1087.

*Spec. Char., &c.* Stems procumbent. Leaves permanent, obovate, quite entire, coriaceous, shining, resembling those of the common box. Flowers fasciculate; pale red, or white with a red mouth; growing in small clusters at the extremities of the branches. Drupe 5-celled. (*Don's Mill.*) A trailing evergreen shrub. Canada and New England in rocky situations, and in the Island of Unalascha; also in the middle of Europe; and upon dry heathy mountains throughout the Highlands and Western Isles of Scotland. Height 1 ft.; trailing stems 2 ft. to 4 ft. Flowers pale red; May and June. Berries red; ripe in September.



1087. *A.* U'va-úrsi.

*Variety.*

A. *U.* 2 *austrìaca* Lodd. — Leaves somewhat larger than those of the species.

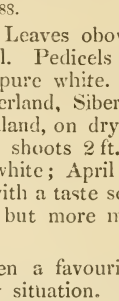
The berries are filled with an austere mealy pulp, and serve as food for grouse and other birds in Britain; and in Sweden, Russia, and America, they form a principal part of the food of bears. The whole plant is powerfully astringent: it abounds in the tannin principle; and, both in Sweden and

America, it has been used for tanning leather, and dyeing it an ash-grey colour. On rockwork in gardens it is very ornamental.

2. 2. *A.* ALPI'NA *Spreng* The Alpine Bearberry.

*Identification.* Spreng. Syst., 2. p. 287.; Don's Mill., 3. p. 836.
*Synonyme.* *A'*rbutus alpìna *Lin. Sp.* 566.
*Engravings.* Engl. Bot., t. 2030.; and our *fig.* 1088.

*Spec. Char., &c.* Stem procumbent. Leaves obovate, acute, wrinkled, serrated, deciduous. Racemes terminal. Pedicels rather hairy. The flowers grow in reflexed racemes, and are pure white. (*Don's Mill.*) A trailing evergreen shrub. Denmark, Switzerland, Siberia, Lapland, &c.; the Highlands of Scotland, on dry moors; also in Canada, &c. Height 1 ft.; shoots 2 ft. to 4 ft. Flowers in reflexed racemes, pure white; April to June. Fruit black, of the size of a sloe, with a taste somewhat resembling that of black currants, but more mawkish; ripe in September.


1088. *A.* alpina.

In British gardens, it has long been a favourite peat-earth trailing shrub, requiring an airy situation. It does not thrive in the immediate vicinity of London, nor where it is much sheltered; but, either on rockwork, in beds of dry peat, or in moist peat, it grows with great luxuriance, and occasionally ripens fruit.

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A. *púngens* H. B. et Kunth (*Don's Mill.*, iii. p. 836.) is a native of Mexico, in elevated places, near Moran and Villalpando, where it forms a branchy shrub, about a foot in height. Introduced in 1839. Hort. Soc. Garden.

## GENUS XVI.



### PERNE'TTY*A* Gaud. THE PERNETTYA. *Lin. Syst.* Decándria. Monogýnia.

*Identification.* Gaud. in Frey. Voy., p. 454. t. 67.; Don's Mill., 3. p. 836
*Derivation.* Named after *Dom Pernetty*, the author of the *Account of a Voyage to the Falkland Isles;* a work remarkable for its interest, as well as for its candour and exactness. The original species of this genus was mentioned by this traveller under the name of "Bruyère à feuilles pointues." (*Lindl.* in *Bot. Reg.*)

*Gen. Char.* *Calyx* inferior, 5-parted. *Corolla* globose; limb 5-parted, revolute. *Stamens* 10, almost hypogynous, enclosed; filaments thickened at the base. *Cells* of anthers bifid, and dehiscing at the apex. *Ovarium* free, depressed, globose, 5-celled; cells many-seeded; hypogynous scales or glands 10, 3-lobed, forming a ring round the ovarium, and alternating with the stamens. *Style* terminal, short. *Stigma* convex, obsoletely 5-lobed. *Berry* propped by the rather fleshy calyx. *Seeds* minute, oblong-ovate. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, evergreen; very small, approximate. *Flowers* axillary, solitary, drooping, with bracteate peduncles.—Shrubs, evergreen, small, spreading, much branched; natives of Europe and America.

1. 1. P. MUCRONA'TA *Gaud.* The mucronate-*leaved* Pernettya.

*Identification.* Gaud. in Ann. Sc., 5. p. 102.; Don's Mill., 2. p. 836.
*Synonyme.* *A'*rbutus mucronàta *Lin. fil. Suppl.* p. 239.
*Engravings.* Bot. Reg., t. 1675.; Bot. Mag., t. 3093.; and our *fig.* 1089.

*Spec. Char., &c.* Leaves ovate, cuspidate, denticulately serrulate, stiff, shining on both surfaces. Pedicels axillary, bracteate, about equal in length to the leaves. Flowers white, drooping. (*Don's Mill.*) A neat little evergreen shrub. Terra del Fuego, Cape Horn, and the Straits of Magellan. Height 2 ft. to 3 ft. Introduced in 1828. Flowers white; May.

1089. P. mucronàta.

*Variety.*

♃ *P. m.* 2 *Cummíngii*, P. Cummíng*ii* Lodd., differs from the species in having larger, less serrated, and more ovate leaves.

A hardy evergreen shrub, of considerable beauty, on account of the neat appearance and dark colour of its foliage.

♃ 2. P. PILO'SA *G. Don.* The pilose, *or hairy*, Pernettya.

*Identification.* Gard. Mag., 10. p. 286.; Don's Mill., 3. p. 837.; Bot. Mag., t. 3177.
*Synonyme.* *A'*rbutus pilòsa *Graham.*
*Engravings.* Bot. Mag., t. 3177.; and our *fig.* 1090.

*Spec. Char., &c.* Stem pilose, procumbent. Leaves ovate-elliptic, ciliately serrulated, coriaceous, without a mucro, and callous at the point. Pedicels axillary, 1-flowered, elongated, deflexed. Corolla ovate, with blunt revolute teeth, white. (*Don's Mill.*) A prostrate evergreen shrub. Mexico. Height 6 in. to 1 ft. Introduced in 1828, or before. Flowers white; May.

1090. P. pilòsa.

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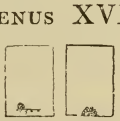
*P. microphýlla* Gaud. (*Don's Mill.*, iii. p. 336.), *A'*rbutus microphýlla *Forst.*, *A.* serpyllifòlia *Lam.*, is a native of the Straits of Magellan, where it grows to the height of 2 or 3 feet, but has not yet been introduced.

*P. pùmila* Gaud. (*Bot. Reg.*, May, 1834), *A'*rbutus pùmila *Forst.*, is a native of Magellan, introduced in 1820. Horticultural Society's Garden.

## GENUS XVII.



### GAULTHE'R*IA* L. THE GAULTHERIA. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Lin. Gen., No. 551.; Don's Mill., 3. p. 839.
*Derivation.* So named by Kalm, from *Gaulthier*, a physician and botanist of Canada.

*Gen. Char.* *Calyx* 5-cleft. *Corolla* ovate, with a short 5-cleft limb. *Stamens* 10, enclosed. *Anthers* bifid at the apex; lobes biaristate. *Style* 1. *Stigma* obtuse. *Hypogynous scales* 10, obsolete, or connate at the base. *Capsule* depressedly globose, 5-celled, 5-furrowed, covered by the calyx, which is sometimes baccate; valves septiferous in the middle. *Placentas* adnate to the base of the column. *Seeds* numerous, covered by a reticulated testa. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; toothed, ciliated. *Flowers* axillary and terminal, racemose, rarely solitary; pedicels bibracteolate. *Corollas* white, rose-coloured, or scarlet. *Filaments* usually hairy. — Shrubs, evergreen, procumbent; natives of America.

♃ 1. G. PROCU MBENS *L.* The procumbent Gaultheria.

*Identification.* Lin. Sp., 565.; Don's Mill., 3. p. 839.; Lodd. Cat., ed. 1836.
*Synonymes.* Partridge Berry, Mountain Tea, Spring Winter-Green. *Smith's History of Nova Scotia.*
*Engravings.* Andr. Bot. Rep., 116.; Kalm Amœn., 3. p. 14. t. 1. f. 6.; Du Ham. Arb., 1. p. 286. t. 113.; Lodd. Bot. Cab., t. 82.; Sim's Bot. Mag., t. 1896.; and our *fig.* 1091.

*Spec. Char., &c.* Stem procumbent. Branches erect, naked at bottom, but with crowded leaves at top. Leaves obovate, acute at the base, finely and

ciliately toothed. Flowers few, terminal, nutant. (*Don's Mill.*) A very small evergreen shrub. Canada to Virginia, in dry woods, on mountains, and in sandy places. Height 6 in. Introduced in 1762. Flowers white; July to September. Berries red; remaining on the plant great part of the winter.

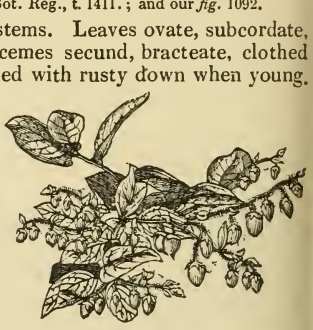
1091. G. procúmbens.

A very pretty little shining-leaved plant, improperly termed procumbent, which makes very ornamental edgings in peat soil, kept moist; in which soil alone it can be well grown. The leaves, if properly cured, make a most excellent tea.

2. G. *SHA'LLON* Pursh. The Shallon Gaultheria.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 283.; Don's Mill., 3. p. 839.
*Engravings.* Pursh Sept., 1. fig.; Bot. Mag., t. 2843.; Bot. Reg., t. 1411.; and our *fig.* 1092.

*Spec. Char., &c.* Procumbent, hairy on the stems. Leaves ovate, subcordate, serrated, glabrous on both surfaces. Racemes secund, bracteate, clothed with rusty down. Branches warted, clothed with rusty down when young. Leaves broad, abruptly acuminated. Pedicels scaly. Corolla white, tinged with red, downy, urceolate, with a closed limb. Berries globose, acute, fleshy, purple. (*Don's Mill.*) A procumbent evergreen shrub. North America, on the Falls of the Columbia, and near the Western Ocean. Height 2 ft. to 3 ft. Introduced in 1826. Flowers white, tinged with pink; May. Fruit purple; September.



1092. G. *Shállon.*

This plant grows in the shade of close pine forests, where hardly any thing else will thrive. The berries are much esteemed by the natives, on account of their agreeable flavour. In the North of England, and in Scotland, the plant has already been employed as undergrowth in artificial plantations, for the sake of the shelter and food which it affords for game.

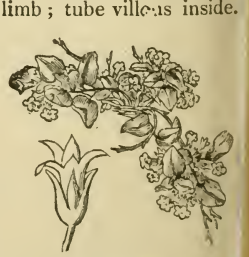
## GENUS XVIII.

EPIGÆ'A *L.* THE EPIGÆA. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Lin. Gen., No. 550.; Don's Mill., 3. p. 841.
*Synonymes.* Memécylum *Mich. Gen.* 13.; May Flower, *Nova Scotia.*
*Derivation.* From *epi*, upon, and *gaia*, the earth; the plant creeps upon the surface of the earth.

*Gen. Char.* *Calyx* large, 5-parted, furnished with 3 bracteas at the base. *Corolla* salver-shaped, with a 5-parted spreading limb; tube villous inside. *Stamens* 10. *Capsule* 5-celled, many-seeded. *Placenta* 5-parted. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; entire. *Flowers* axillary and terminal, in dense racemes.—A shrub, evergreen, creeping, tufted; native of North America.



1093. *E.* rèpens.

1. E. RE'PENS *L.* The creeping Epigæa.

*Identification.* Lin. Sp., 565.; Don's Mill., 3. p. 841.; Lodd. Cat., ed. 1836.
*Engravings.* Bot. Rep., 102.; Bot. Cab., 160.; and our *fig.* 1093.

*Spec. Char., &c.* Branches, petioles, and nerves of

leaves very hairy. Leaves cordate-ovate, quite entire. Corollas cylindrical. Flowers white, tinged with red, very fragrant. (*Don's Mill.*) A creeping evergreen shrub. Nova Scotia to Carolina, on shady rocks and in stony woods, on the sides of hills, and at the roots of pines. Height 6 in. Introduced in 1736. Flowers white, tinged with red, very fragrant; May to July.

*Variety.*

♠ *E. r.* 2 *rubicánda* Swt. Fl. Brit. 2d ser t. 384. has brilliant pink flowers. Raised from seed, 1836.

Succeeds in peat soil, kept rather moist, and protected with a frame or hand-glass, or with snow, during very severe frosts.

## Genus XIX.

PHALEROCA'RPUS *G. Don.* The Phalerocarpus. *Lin. Syst.* Octándria Monogýnia.

*Identification.* Don's Mill., 3. p. 341.
*Synonymes.* *V*accínium *Lin.*; Gaulthè*ria* Pursh; Oxycóccus *Nutt.*; *A'*rbutus *Lam.*
*Derivation.* From *phalēros*, white, and *karpos*, a fruit; in reference to the colour of the berries.

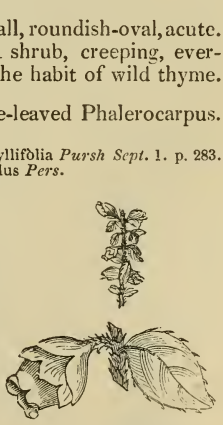
*Gen. Char.* *Calyx* 4-cleft, bibracteate at the base. *Corolla* short, campanulate, 4-cleft. *Stamens* 8; filaments hairy ?. *Hypogynous disk* 8-toothed. *Anthers* semibifid. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; small, roundish-oval, acute. *Flowers* axillary, solitary, nearly sessile, white.—A shrub, creeping, evergreen, of diminutive size, with hispid branches and the habit of wild thyme.

♠ 1. P. *s*ERPYLLIFO'LIUS *G. Don.* The Wild-Thyme-leaved Phalerocarpus.

*Identification.* Don's Mill., 3. p. 841.
*Synonymes.* *V*accínium hispídulum *Lin. Sp.* 500.; Gaulthè*ria s*erpyllifòlia *Pursh Sept.* 1. p. 283. t. 13.; *A'*rbutus filiformis *Lam. Dict.* 1. p. 228.; Oxycóccus hispídulus *Pers.*
*Engravings.* Michx. Fl. Bor. Amer., 1. t. 23.; Pursh Sept., t. 13.; and our *fig.* 1094.

*Spec. Char., &c.* Berries white, produced in considerable quantities, aromatic, not very acid, and rather insipid than agreeable. The shrub has the same aromatic taste and smell as Gaulthè*ria* procúmbens. (*Don's Mill.*) A creeping evergreen shrub. Canada to Pennsylvania; and more particularly where cedars and other evergreens are predominant; and growing always amidst *S*phágnum. Height 6 in. Introduced in 1815. Flowers white; April and May. Berries white.



1094. P. serpyllifòlius.

## Genus XX.

*C*LE'THRA *L.* The Clethra. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Lin. Gen., No. 553.; Don's Mill., 3. p. 841.
*Synonyme.* *Cuellària* Ruiz et Pav. Syst. 105.
*Derivation.* From *klēthra*, the Greek name of the alder; alluding to a supposed resemblance in the leaves.

*Gen. Char.* *Calyx* 5-parted. *Corolla* so deeply 5-parted as to appear pentapetalous. *Stamens* 10, enclosed, or nearly so. *Anthers* behind, at length inflexedly pendulous and obverse, cordate, mucronate at the apex, mutic.

*Ovarium* free. *Styles* straight. *Stigma* trifid. *Capsule* girded by the calyx, 3-celled, with a loculicidal dehiscence ; cells many-seeded. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous; serrated. *Flowers* in racemes, terminal, solitary, or panicled, bracteate, with white corollas. — Shrubs, deciduous ; natives of North America. From the appearance of the plants in British gardens, we are strongly inclined to think that all the sorts may be referred to one species. Peat soil kept moist.

1095. C. alnifòlia.

1. *C.* ALNIFO'LIA *L.* The Alder-leaved Clethra.

*Identification.* Lin. Sp., 566. ; Don's Mill., 3. p. 841. ; Pursh Sept., 1. p. 301.
*Synonyme.* *C.* alnifòlia var. *α* denudàta *Ait. Hort. Kew.* 2. p. 73.
*Engravings.* Schmidt Baum., t. 47. ; and our *fig.* 1095.

*Spec. Char., &c.* Leaves cuneate-obovate, acute, coarsely serrated above, glabrous on both surfaces, and of the same colour. Racemes spicate, simple, bracteate, clothed with hairy tomentum. (*Don's Mill.*) A deciduous shrub. New England to Virginia, in swamps. Height 3 ft. to 4 ft. Introduced in 1731. Flowers white ; July and September.

2. *C.* (*A.*) TOMENTO'SA *Lam.* The downy Clethra.

*Identification.* Lam. Dict., 2. p. 46. ; Don's Mill., 3. p. 842. ; Pursh Fl. Amer. Sept. 1. p. 301.
*Synonymes.* *C.* alnifòlia *β* pubéscens *Ait. Hort. Kew.* 2. p. 73. ; *C.* incàna *Pers. Ench.* 1. p. 482.
*Engravings.* Wats. Dend. Brit., t. 39. ; and our *figs.* 1096, and 1097.

*Spec. Char., &c.* Leaves cuneate-obovate, acute, finely serrated at top, clothed with white tomentum beneath. Racemes spicate, simple, bracteate, villously tomentose. (*Don's Mill.*) A deciduous shrub. Virginia and Carolina, in swamps. Height 3 ft. to 4 ft. Introduced in 1731. Flowers white ; July to October.

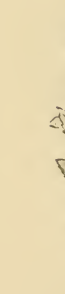
1096. *C.* (*a.*) tomentòsa.

1097. *C.* (*a.*) tomentòsa.

3. *C.* (*A.*) PANICULA'TA *Ait.* The panicled-*flowered* Clethra.

*Identification.* Ait. Hort. Kew., 2. p. 73. ; Don's Mill., 3. p. 842. ; Pursh Sept., 1. p. 302.
*Engraving.* Our *fig.* 1098. from a specimen in the British Museum.

*Spec. Char., &c.* Leaves narrow, cuneate-lanceolate, acute, acuminately serrated, glabrous on both surfaces. Panicle terminal, elongated, composed of racemes, and clothed with white tomentum. (*Don's Mill.*) A deciduous shrub. Carolina. Height 3 ft. to 4 ft. Introduced in 1770. Flowers white ; July to October.


1098. C. (a.) paniculàta.

4. *C.* (*A.*) ACUMINA'TA *Michx.* The acuminated-*leaved* Clethra.

*Identification.* Michx. Fl. Bor., Amer. 1. p 260. ; Don's Mill., 3. p. 842. ; Pursh Sept., 1. p. 302.
*Synonyme.* C. montàna *Bartr. Cat.*
*Engravings.* Bot. Cab., t. 1427. ; and our *fig.* 1099.

*Spec. Char., &c.* Leaves oval, acuminated, bluntish at the base, serrated, glabrous on both surfaces, rather glaucous beneath. Racemes spicate, almost solitary, bracteate, clothed with white tomentum. Flowers resembling those of *C.* alnifòlia. (*Don's Mill.*) A large shrub or low

1099. *C.* (*a.* acuminàta.

tree. Carolina, on high mountains. Height 10 ft. to 15 ft. Introduced in 1806. Flowers white; July to October.

5. *C.* (*A.*) SCA'BRA *Pers.* The rough-*leaved* Clethra.

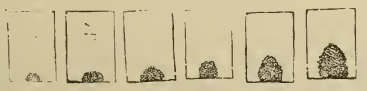
*Identification.* Pers. Ench., 1. p. 482.: Don's Mill., 3. p. 842.; Pursh Sept., 1. p. 302.
*Engraving.* Our *fig.* 2093. in p. 1107.

*Spec. Char., &c.* Leaves broad, cuneate-obovate, acute, scabrous on both surfaces, coarsely serrated; serratures hooked. Racemes spicate, sub-panicled bracteated, finely tomentose. (*Don's Mill.*) A deciduous shrub. Western parts of Georgia. Height 3 ft. to 4 ft. Introduced in 1806. Flowers white; July to October.

## Sect. II. *RHODO'REÆ.*

The *R*hodòreæ include genera of some of the most singularly ornamental evergreen and deciduous peat-earth shrubs that adorn our gardens; for what would our American grounds be without rhododendrons and azaleas? The culture of all the species is nearly the same; they all require peat-earth, or, at least, thrive best in it; and some of them will not live without it. They may all be propagated by cuttings of the growing shoots, planted in fine sand, and covered with a glass, or by layers; but the best plants of all the species are procured from seed. The varieties can, of course, only be continued by cuttings or layers; and the stools for these require to be planted in beds of peat, which should be kept tolerably moist. The seeds, if ripened in this country, should be sown soon after gathering; and those imported from America, immediately on being received: because, though the seeds of all the *E*ricàceæ will retain the vital principle for several years, yet the longer they are kept out of the soil, the less likely they are to germinate, and the greater will be the risk of losing some of them. They should be sown in pots or boxes, or in a border shaded from the direct influence of the sun; and kept in a uniform state of moisture, and protected from the frost. In sowing, the surface of the soil should previously be made quite smooth, and gently pressed down, or watered till it has settled to a level surface; and, after the seeds have been equally distributed over this surface, they should be covered with no more soil than is barely requisite to conceal them from the eye. Seeds sown in autumn will germinate in the following spring, and be fit for transplanting into nursery lines or pots by the autumn, or by the spring of the following year. These directions will apply generally to all the species, but are more particularly applicable to those which are perfectly hardy. In France, some of the species have been increased by herbaceous grafting.

## GENUS XXI.



*R*HODODE'NDRON *L.* THE RHODODENDRON, *or* ROSE BAY *Lin. Syst.* Penta-Decándria Monogýnia.

*Identification.* Lin. Gen., No. 548.; Don's Mill., 3. p. 843.
*Synonymes.* Azàlea sp. of authors; *R*hodòra *Lin.*; Chamærhododéndros *Tourn. Inst.* t. 373.; Rhododendron, *Fr.*, *Ital.*, and *Span.*; Alpbalsam, *Ger.*
*Derivation.* From *rhodon*, a rose, and *dendron*, a tree; in reference to the terminal bunches of flowers, which are usually red, or rose-colour.

*Gen. Char.* *Calyx* 5-parted. *Corolla* somewhat funnel-shaped, or campanulate, rarely rotate or 5-parted; limb 5-cleft, somewhat bilabiate; upper lip the broadest, and usually spotted. *Stamens* 5—10, usually exserted, declinate. *Anthers* opening by two terminal pores. *Capsule* 5-celled, 5-valved, rarely

10-celled and 10-valved as in *R.* arbòreum, with a septicidal dehiscence at the apex. *Placentas* simple, angular. *Seeds* compressed, scobiform, winged. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous, or evergreen; quite entire, terminated by a sphacelate apex, or yellow gland. *Flowers* terminal, corymbose, showy. — Shrubs, usually evergreen ; natives of Europe, Asia, and North America.

In the Azàlea division of this genus the species are almost entirely deciduous, with quite entire alternate leaves, terminated by a withered tip, or yellow gland; and terminal, corymbose, showy flowers. All the species thrive best in sandy peat, kept rather moist; and they are propagated chiefly by layers and seeds.

## § i. *Pónticum* D. Don.

*Sect. Char.* Limb of calyx short, 5-lobed. Corolla campanulate. Stamens 10 Ovarium 5-celled. Leaves coriaceous, evergreen. (*Don's Mill.*, iii. p. 843.)

* 1. *R.* PO'NTICUM *L.* The Pontic Rhododendron, *or Rose Bay.*

*Identification.* Lin. Sp., 562. ; Don's Mill., 3. p. 843.
*Engravings.* Pall. Fl. Ross., 1. p. 43. t. 29. ; Bot. Mag., t. 650. ; and our *fig.* 1100.

*Spec. Char., &c.* Leaves oblong-lanceolate, glabrous on both surfaces, attenuated towards the thick petioles, with a streak on the upper surface, of a wide lanceolate form. Racemes short, corymbose. Leaves sometimes becoming ferruginous beneath. Corolla purple or purplish pink, large; with ovate, acute, or lanceolate segments. Calyx minute, 5-toothed, somewhat cartilaginous. (*Don's Mill.*) An evergreen shrub; Pontus (now Armenia), in Asia Minor. Height 10 ft. to 12 ft. Introduced in 1763. Flowers purple; May and June. Capsules brown ; ripe in September.

1100. *R.* pónticum

*Varieties.*

* R. *p.* 2 *obtùsum* Wats. Dend. Brit. t. 162., Don's Mill., has the leaves subcordate, coriaceous, obtuse, and the calyx very short, and unequally and undulately crenated. It grows from 3 ft. to 4 ft. high, and has purple flowers. Wild in Armenia.

1101. *R.* p. *myrtifòlium.*

* R. *p.* 3 *myrtifòlium* Lodd. Bot. Cab. t. 908. (and our *fig.* 1101.), Don's Mill., has the leaves small, and the flowers purple. It is a native of Gibraltar.

* R. *p.* 4 *Smithii Swt. Brit. Fl.-Gard.* n. s. t. 50., *Don's Mill.*, has the leaves lanceolate, and clothed with white tomentum beneath ; corymbs many-flowered ; ovarium tomentose, and 10-celled. The flowers are of a rosy purple, approaching to crimson, elegantly spotted with black. A hybrid, raised by Mr. Smith, at Coombe Wood, from the seed of *R.* pónticum, impregnated by the pollen of *R.* arbòreum.

* R. *p.* 5 *Lòwii Gard. Mag.* vol. xi. p. 190.— Corolla white ; the upper segments marked by a few dull scarlet spots. This is a most striking variety, originated by M. Jacob Makoy.

** R. *p.* 6 *azaleoïdes* ; *R.* azaleoïdes *Desf.* ; *R.* p. β subdecíduum *Andr. Bot. Rep.* t.

1102. *R.* p. azaleoïdes

379., and our *fig.* 1102.; is a hybrid between *R.* pónticum and some species of Azàlea with fragrant blossoms. It was originated about 1820, and is a favourite in collections.

* R. *p.* 7 *frà̀grans* Chandler (*Herb. Amaryll.* p. 356.) was raised in the Vauxhall Nursery.

*Nursery Varieties.* The following are cultivated by Messrs. Loddiges:—

| | | | |
|---|---|---|---|
| *R.* p. álbum. | *R.* p. cæruléscens. | *R.* p. frondòsum. | *R.* p. obtùsum. |
| angustifòlium. | contortum. | grandiflòrum. | ovàtum. |
| angustíssimum. | crispum. | incarnàtum. | pygmæ'um. |
| *a*rbutifòlium. | fl. plèno. | intermèdium. | *r*ò*seum.* |
| brome*liæfòlium.* | fol. argénteis. | kalmi*æfòlium.* | *s*alicifòlium |
| bullàtum. | fol. aúreis. | macrophýllum. | spectábile. |
| *cassine*fòlium. | fol. marginàtis. | niváticum. | *v*iolàceum. |

The *R*hododéndron pónticum is the commonest species of the genus in British gardens, where it grows to the height of from 5 ft. to 15 ft., or upwards; forming a dense bush, which will spread over a large space, if it be allowed abundance of room. In proper soil, if kept moist, the plant will make shoots, when young, of 1 ft. or more in length in a season, attaining the height of 4 or 5 feet in 5 or 6 years: but afterwards it grows more slowly; and, when a large bush, seldom makes shoots above 6 in. in length. It appears to be of considerable durability. In cool, loamy or sandy, and somewhat moist soils, it is planted in woods as ornamental undergrowth, and succeeds perfectly, both in England and Scotland. It will grow in almost any soil; but, in England, it seems to thrive best in sandy peat, or deep sandy loam. In the common manured earth of gardens it succeeds worse than in unmanured loams of a close texture, even strong clays, particularly if the latter be kept moist. The want of tenacity of the manured garden soil alluded to, more especially in a dry season, seems not to allow it to cohere sufficiently to the small hair-like roots of this order of plants, to enable their very minute spongioles to imbibe nourishment from it.

* 2. *R.* MA'XIMUM *L.* The largest Rhododendron, *or American Rose Bay.*

1103. *R.* máximum.

*Identification.* Lin. Sp. Pl., p. 563.; Don's Mill., 3. p. 843.; Lodd. Cat., ed. 1836.
*Engravings.* Lam. Ill., 364.; Schmidt Baum., t. 121.; and our *fig.* 1103.

*Spec. Char., &c.* Arborescent. Leaves elliptic-oblong, acute, convex, bluntish at the base, whitish or rusty beneath, glabrous. Calycine segments oval-obtuse. Segments of corolla roundish. Flowers pale red, in umbellate corymbs, studded with green, yellow, or purple protuberances. (*Don's Mill.*) An evergreen shrub. Canada to Carolina, on the mountains, near rivulets and lakes, upon rocks and barren soils. Height 10 ft. to 15 ft. Introduced in 1736. Flowers pale red, and yellowish; June to August. Capsules brown; ripe in September.

*Varieties.*

* R. *m.* 2 *álbum* Hort.—Flowers pure white, and is comparatively rare in British gardens.

* R. *m.* 3 *hýbridum* Hook. Bot. Mag. t. 3454. (and our *fig.* 1104.) *R.* fràgrans *Hort.*, *R.* hýbridum *Lodd. Cat.*—Supposed to be a hybrid originated by fertilising the common white glaucous-leaved Azàlea with the pollen of *R.* máximum. This

1104 *R.* m. hýbridum.

variety has fragrant flowers, and, according to Sir W. J. Hooker, is "amply worthy of a place in every garden and shrubbery."

Readily known from *R.* pónticum and *R.* catawbiénse by the rusty under surface of the leaves, and the comparatively pale green of the entire plant. It neither grows nor flowers so freely in British gardens as the other species.

* ♃ 3. *R.* (M.) PURPU'REUM *G. Don.* The purple-*flowered* Rhododendron, *or American Rose Bay.*

*Identification.* Don's Mill., 3. p. 843.
*Synonymes.* *R.* máximum γ purpúreum *Pursh Fl. Amer. Sept.* 1. p. 297.; *R.* pónticum macrophýllum *Lodd. Cat.*
*Engraving.* Our *fig.* 2096. in p. 1108.

*Spec. Char., &c.* Leaves large, oblong-elliptic, flattish, acute, bluntish at the base, green, and glabrous on both surfaces. Segments of corolla oblong and obtuse. Calycine segments obtuse. This shrub approaches near to *R.* pónticum; but it differs in its foliaceous calyx, and otherwise. It grows to an immense size; its stem being often found 18 in. and more in diameter; and its foliage triple the size of that of any other species. (*Don's Mill.*) A large evergreen shrub, or low tree. Virginia and Carolina, on the highest mountains, near lakes. Height 25 ft.; in England seldom seen otherwise than as a shrub. Introduced ?. Flowers large, purple; May and June. Rare in British gardens.

* 4. *R.* PU'RSHII G. Don. Pursh's Rhododendron, *or American Rose Bay.*

*Identification.* Don's Mill., 3. p. 843.
*Synonyme.* *R.* máximum β álbum *Pursh Fl. Amer. Sept.* 1. p. 297.
*Engraving.* Our *fig.* 1105. from a specimen in Dr. Lindley's herbarium.

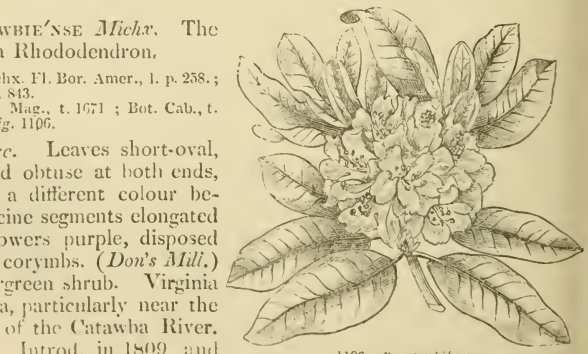
1105. *R.* Púrshii.

*Spec. Char., &c.* Arborescent. Leaves cuneate-lanceolate, flat, glabrous, tapering gradually to the base, paler beneath. Calycine segments oval, obtuse. Segments of corolla roundish oblong. Flowers white, and smaller than those of *R.* máximum. (*Don's Mill.*) An evergreen shrub. New Jersey and Delaware, in shady cedar swamps. Height 6 ft. to 8 ft. Introduced in 1811, but not common in collections. Flowers white; June to August. The latest of all the rhododendrons in British gardens. Horticultural Society's Garden.

5. *R.* CATAWBIE'NSE *Michx.* The Catawba Rhododendron.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 258.; Don's Mill., 3. p. 843.
*Engravings.* Bot. Mag., t. 1671; Bot. Cab., t. 1176.; and our *fig.* 1106.

*Spec. Char., &c.* Leaves short-oval, rounded, and obtuse at both ends, glabrous, of a different colour beneath. Calycine segments elongated oblong. Flowers purple, disposed in umbellate corymbs. (*Don's Mill.*) A large evergreen shrub. Virginia and Carolina, particularly near the head waters of the Catawba River. Height 4 ft. Introd. in 1809 and



1106. *R.* catawbiénse.

now one of the most common species, and the hardiest, in gardens. Flowers rosy lilac; June to August. Capsule brown; ripe in September.

*Varieties.*

- R. *c.* 2 *Russelliànum* *Brit. Fl.-Gard.* 2d ser. t. 91. — Leaves oblong finely tomentose beneath. Corymbs many-flowered. Flowers of a bright rosy red, approaching to crimson. A hybrid raised from the seed of *R.* catawbiénse, impregnated by the pollen of *R.* arbòreum, by Mr. Russell of Battersea. A very splendid variety, but somewhat tender.
- R. *c.* 3 *tigrìnum* Hort. — A variety with a corolla much resembling that of *R.* c. Russell*iànum*, but with obvious spots on the inside.

It is of more robust growth than either *R.* pónticum or *R.* máximum, but, in other respects, seems intermediate between them. There are many hybrids in cultivation between it and the former species, though without names.

♃ 6. *R.* CHRYSA'NTHUM *L.* The golden-*flowered* Rhododendron.

*Identification.* Lin. Syst., 405., Suppl., 237.; Don's Mill., 3. p. 843.
*Synonyme.* *R.* officinàle *Salisb.* p. 121. t. 54.
*Engravings.* Salisb. Par. Lond., t. 80.; and our *fig.* 1107.

*Spec. Char., &c.* Leaves acutish, attenuated at the base, oblong, glabrous, reticulately veined, and of a rusty colour beneath. Flowers and buds clothed with rusty tomentum. Pedicels hairy. Calyx hardly any. Segments of the corolla rounded. Ovarium tomentose. Branches decumbent, beset with rusty stipule-formed scales. Flowers handsome, large, drooping, revolute, rather irregular, yellow. Stigma 5-lobed. (*Don's Mill.*) A low evergreen undershrub. Siberia, on the highest mountains; and Caucasus and Kamtschatka. Height 6 in. to 1 ft. Introduced in 1796, but not common in collections, being very difficult to keep. Flowers yellow; June and July.

1107. *R.* chrysánthum.

It requires to be grown in rather moist peat, kept firm, in an open airy situation.

♃ 7. *R.* CAUCA'SICUM *Pall.* The Caucasian Rhododendron.

*Identification.* Pall. Fl. Ross., 1. p. 46. t. 30.; Don's Mill., 3. p. 844.
*Engravings.* Bot. Mag., t. 1145.; and our *fig.* 1108.

*Spec. Char., &c.* Leaves ovate-oblong, clothed with rusty tomentum beneath, rugged and green above. Peduncles hairy. Bracteas elongated, tomentose. Ovarium downy. Root creeping. Branches procumbent. Flowers purple or white, disposed in umbellate corymbs. Corollas rotate, with wavy rounded segments. (*Don's Mill.*) A compact evergreen shrub. Caucasus, on high rocks, near the limits of perpetual snow. Height 1 ft. Introduced in 1803, but rare in collections. Flowers white or purple; August.

1108. *R.* caucásicum.

*Varieties.* The following hybrids are among the handsomest rhododendrons in cultivation: —

- R. *c.* 2 *stramíneum* Hook. Bot. Mag. t. 3422. — Corollas straw-coloured. A plant of this variety in the Glasgow Botanic Garden, in April, 1835, was 2 ft. high, and 3 ft. in diameter, with the extremities of its fine leafy branches terminated with clusters of large, beautiful, straw-coloured flowers. The climate of Scotland seems to suit this, and some of the other species found in the coldest parts of the Russian empire, better than that of the South of England.
- R. *c.* 3 *pulchérrimum* Lindl. Bot. Reg. t. 1820. f. 2. — A hybrid ob-

tained by Mr. Waterer of the Knaphill Nursery, between *R.* arbòreum and *R.* caucásicum, in 1832; a most beautiful variety, quite hardy, and an abundant flowerer.

R. *c.* 4 *Noble*ànum *Hort.* (Bot. Reg., t. 1820. f. 1.) is a hybrid, very much like the preceding one in all respects, except that its flowers are of a deep and brilliant rose colour.

8. *R.* PUNCTA'TUM *Andr.* The dotted-*leaved* Rhododendron.

1109. *R.* punctàtum.

*Identification.* Andr. Bot. Rep., 36.; Vent. Cels., t. 15.; Don's Mill., 3. p. 844.
*Synonymes.* *R.* ferrugíneum var. mìnus *Pers. Ench.* 1. p. 478.; *R.* mìnus *Michx. Fl. Bor. Amer.* 1. p. 258.; *R.* punctàtum var. mìnus *Wats. Dend. Brit.* 162. A.
*Engravings.* Andr. Bot. Rep., 36.; Dend. Brit., t. 162. A.; and our *fig.* 1109.

*Spec. Char., &c.* Leaves oval-lanceolate, acute at both ends, glabrous, beset with rusty resinous dots beneath. Pedicels short. Calycine teeth short. Segments of corolla ovate, a little undulated. Flowers pink, disposed in umbellate corymbs. Corollas funnel-shaped. Capsules elongated. (*Don's Mill.*) A low evergreen shrub. Carolina, on mountains, particularly at the head waters of the Savannah River. Height 4 ft. Introd. 1786. Flowers pink; July and August.

1110. *R.* p. màjus.

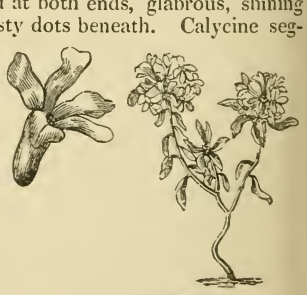
*Variety.*

R. *p.* 2 *màjus* Ker. (Bot. Reg., t. 37.: and our *fig.* 1110.) — Leaves and flowers larger.

9. *R.* FERRUGI'NEUM *L.* The rusty-*leaved* Rhododendron.

*Identification.* Lin. Sp., 562.; Don's Mill., 3. p. 844.
*Engravings.* Bot. Cab., 65.; and our *fig.* 1111.

*Spec. Char., &c.* Leaves oblong, attenuated at both ends, glabrous, shining and green above, but thickly beset with rusty dots beneath. Calycine segments dentately ciliated. Leaves like those of the box tree; when young, ciliated with a few hairs at bottom. Flowers of a beautiful rose colour or scarlet, disposed in umbellate corymbs, marked with ash-coloured or yellow dots. Corollas funnel-shaped. Filaments hairy at bottom. (*Don's Mill.*) A low evergreen shrub. Alps of Switzerland, Austria, Savoy, Dauphiné, and Piedmont; where this species and *R.* hirsùtum terminate ligneous vegetation, and furnish the shepherds with their only fuel. Height 1 ft. Introduced in 1752. Flowers rose-coloured or scarlet; May to July.



1111. *R.* ferrugíneum.

*Variety.*

R. *f.* 2 *àlbum* Lodd. Cat. ed. 1836. — Flowers white.

10. *R.* (? F.) HIRSU'TUM *L.* The hairy Rhododendron.

*Identification.* Lin. Sp., 562.; Don's Mill., 3. p. 844.
*Engravings.* Bot. Mag., t. 1853.; Bot. Cab., t. 479.; and our *fig.* 1112.

*Spec. Char., &c.* Leaves ovate-lanceolate, or elliptic, acutish, ciliated with rusty hairs on the margins, glabrous above, dotted and hairy beneath. Calycine segments fringed, bearded. Flowers pale red or scarlet, disposed in umbellate corymbs. Corollas funnel-shaped. (*Don's Mill.*) A low evergreen shrub. Alps of Switzerland, Austria, Styria, Dauphiné, &c. Height 1 ft. to 2 ft. Introduced in 1656. Flowers pale red or scarlet; May to July.

1112. *R.* (f) hirsùtum.

*Variety.*

R. (*f.*) *h.* 2 *variegàtum.* — Leaves edged with yellow. Possibly only a variety of the preceding species.

11. *R.* SETO'SUM *D. Don.* The bristly Rhododendron.

*Identification.* D. Don in Wern. Soc. Trans., 3. p. 408.; Don's Mill., 3. p. 844.
*Engraving.* Our *fig.* 1113. from a specimen in the herbarium of Professor DeCandolle.

*Spec. Char., &c.* Branchlets beset with bristles. Leaves oval, mucronate, bristly on the margins and under surfaces. Pedicels beset with glandular hairs. Calycine segments rounded, coloured, naked, crenulated. A small, stiff, much-branched shrub. Leaves half an inch long. Flowers purple, size of those of *R.* dàùricum, disposed in umbellate corymbs. Calyx purple. Filaments bearded at the base. Stigma capitate. (*Don's Mill.*) A low evergreen shrub. Nepal, in Gossainthan. Height 6 in. to 1 ft. Introduced in 1825, but rare. Flowers purple; May.

1113. *R.* setòsum.

*R. macrophýllum* D. Don (*G. Don's Mill.*, iii. p. 843.) is a native of the north-west coast of North America, where it was collected by Mr. Menzies; and there are specimens in Mr. Lambert's herbarium; but the plant has not yet been introduced. The petioles of the leaves are 1 in., and their disks from 7 in. to 8 in. long; and the flowers are smaller than those of *R.* máximum, and white.

## § ii. Boòram.

*Derivation.* The name of *R.* arbòreum in Nepal.

*Sect. Char., &c.* Limb of calyx 5-lobed. Corolla campanulate. Evergreen trees or shrubs, natives of the Himalayas, and other mountainous regions of Northern India. One species is hardy in British gardens.

12. *R.* CAMPANULA'TUM *D. Don.* The bell-shape-*flowered* Rhododendron.

*Identification.* D. Don in Wern. Mem., 3. p. 409.; Prod. Fl. Nep., p. 153.; Don's Mill., 3. p. 844.
*Engravings.* Lodd. Bot. Cab., t. 1944.; Swt. Fl.-Gard., 2d s., t. 24. and our *fig.* 1114.

*Spec. Char., &c.* Leaves elliptic-oblong, mucronate, rusty beneath, rather cordate at the base. Segments of corolla flat, emarginate. Ovarium 6-celled, glabrous. Under surfaces of leaves clothed with fine scaly pubescence, at first of a purplish hue, then changing to nearly white, and afterwards to a deep ferruginous brown. Flowers copious, disposed in corymbose clusters. Pedicels glabrous. Bracteas fringed. Corollas large, pale pink, changing to white, having the upper lip marked with irregular purple spots. Filaments bearded at the base. This species surpasses all others in the size of its

1114. *R.* campanulàtum.

flowers, except one found in Java by Dr. Horsfield. (*Don's Mill.*) A glabrous evergreen shrub. Nepal, on Gossainthan. Height 3 ft. to 5 ft. Introduced in 1825. Flowers pale pink, changing to white; April.

A beautiful and very distinct species, and quite as hardy in British gardens as any of the American kinds.

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R*hododéndron arbòreum* Smith.—Several hybrids between this species and *R.* pónticum and *R.* catawbiénse have been raised, but those only between the American and the more northerly European species have been found tolerably hardy.

R. *a. venústum* D. Don (Brit. Fl.-Gard. May, 1835, 2d ser. t. 285.) is a hybrid, and an exceedingly showy and interesting plant. It was raised by Mr. Wm. Smith, nurseryman, Norbiton Common, near Kingston, Surrey, from seeds of *R.* caucásicum that had been fertilised by the pollen of *R.* arbòreum; and appears sufficiently hardy to survive our winters with a little protection.

## § iii. *Pogonánthum.*

*Derivation.* From *pōgōn*, a beard, and *anthos*, a flower; throat woolly inside.

*Sect. Char.* Limb of calyx short, 5-lobed. Corolla salver-shaped, with a cylindrical tube, and a spreading limb. Stamens 5, enclosed. Ovarium 5-celled. Evergreen shrubs. Leaves coriaceous.

### 13. *R.* ANTHOPO'GON *D. Don.* The bearded-flowered Rhododendron.

*Identification.* D. Don in Mém. Wern. Soc., 3. p. 409.; Don's Mill., 3. p. 845.
*Synonyme.* · *R.* aromàticum *Wall. Cat.*
*Engravings.* Royle Illust., t. 64. f. 2.; and our *fig.* 1115.

*Spec. Char., &c.* Branchlets downy. Leaves oval, rusty beneath from lepidoted tomentum. Corollas with a woolly throat. Shrub much branched. Leaves ending in a reflexed mucro, naked above. Flowers glomerate, sulphur-coloured. Pedicels short, lepidoted, and resinous. Calycine segments rounded at the apex, with villous margins. Segments of corolla roundish, with undulated curled margins. Filaments glabrous. Stigma clavate. (*Don's Mill.*) An upright evergreen shrub, with the habit of *R.* dàùricum. Nepal, on Gossainthan. Height 1 ft. to 1½ ft. Introduced in 1820. Flowers yellow; April and May.

A very interesting species, from the colour of its flowers and their early appearance. Plants have survived the winter of 1837–8 in the Hackney Arboretum.

1115. *R.* anthopògon.

## § iv. *Lepípherum* D. Don.

*Derivation.* From *lepis*, a scale, and *pherō*, to bear; leaves covered with small scales.

*Sect. Char.* Limb of calyx dilated, 5-lobed. Corolla campanulate or rotate. Stamens 10. Ovarium 5-celled. Leaves membranous; sometimes deciduous, but generally persistent. Shrubs, evergreen or deciduous; natives of Europe, North America, and the Himalayas.

### 14. *R.* LAPPO'NICUM *Wahl.* The Lapland Rhododendron.

*Identification.* Wahl. Fl. Succ., p. 249.; Don's Mill., 3. p. 845.
*Synonymes.* Azàlea lappónica *Lin. Fl. Succ.* p. 64., *Sp.* t. 214.; A. ferruginea *Hort.*
*Engravings.* Bot. Mag., t. 3106.; and our *fig.* 1116.

*Spec. Char., &c.* Shrub branched, procumbent. Branches divaricate. Corollas rotately funnel-shaped. Young branches obscurely pubescent, warted. Leaves oblong, obtuse, stiff, beset with honeycomb-like dots, yellowish and scaly beneath; deep green above; and pale green, and at length yellowish, beneath; thickly beset with hollow dots on both surfaces, which are covered

by umbilicate permanent scales. Flowers crimson, disposed in umbellate corymbs, 5—6 together, surrounded by large dotted scales, or bracteas. Calyx covered with yellow scales, ciliated. Segments of corolla unequal, and undulated. Stamens 5—8, equal in length to the corolla. Stigma capitate, 5-lobed. Filaments hairy at the base. (*Don's Mill.*) A procumbent evergreen shrub. Europe, Asia, and North America, in the Arctic regions. Height 6 in. to 1 ft. Introduced in 1825. Flowers crimson; May.

1116. *R.* lappónicum.

15. *R.* DÄU'RICUM *L.* The Dahurian Rhododendron.

*Identification.* Lin. Sp., 562.; Don's Mill., 3. p. 845.
*Engravings.* Pall. Fl. Ross., 1. p. 47. t. 32.; Bot. Mag., t. 836.; and our *fig.* 1117.

*Spec. Char., &c.* Leaves deciduous; oblong, attenuated at both ends, glabrous, but sprinkled with rusty scales, especially beneath. Limb of calyx 5-toothed. Corollas rotate. Roots knobbed, abounding in fibres. Stems twisted and knobbed in the wild state. Petioles downy. Leaves dotted on both surfaces, but ferruginous beneath. Before they fall in autumn, they become of a dusky red colour. The flowers rise before the leaves, from the tops of the branches, from buds which are composed of concave downy scales. (*Don's Mill.*) A deciduous shrub. Siberia, peculiar to the alpine tracts of Eastern Asia. Height 2 ft. to 6 ft. Introduced in 1780. Flowers purple; December to March.

1117. *R.* däùricum.

*Variety.*

R. *d.* 2 *atrovìrens* Ker. (Bot. Reg., t. 194; Bot. Mag., t. 1888.) — Sub-evergreen. Leaves deep green, and shining above; persistent. Siberia.

Very desirable low shrubs, from their flowering so early in the season; but, to thrive, they require peat soil.

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R. *lepidòtum* Wall. (Royle Illust., p. 260. t. 64. f. 1.; Don's Mill., 3. p. 845.) is a native of Nepal, with the habit of *R.* däùricum, but with leaves of a thinner texture; and with every part of the plant beset with ferruginous scale-like dots. It grows to the height of 2 or 3 feet, but has not yet been introduced.

## § v. *Chamæcístus* D. Don.

*Derivation.* From *chamai*, on the ground, and *cistus*, the rock rose; plants with the habit of species of Helíanthemum.

*Sect. Char.* Limb of calyx foliaceous, 5-cleft. Corolla rotate. Stamens 10 Ovarium 5-celled. Diminutive, prostrate, evergreen shrubs, with small membranous leaves.

16. *R.* CAMTSCHA'TICUM *Pall.* The Kamtschatka Rhododendron.

*Identification.* Pall. Fl. Ross., 1. p. 48. t. 33.; Don's Mill., 3. p. 845.
*Engravings.* Gmel. Sib., 4. p. 126. No. 13.; and our *fig.* 1118.

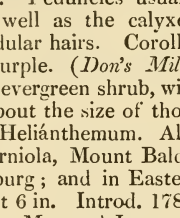
*Spec. Char., &c.* Leaves obovate, acutish, 5-nerved, naked, ciliated; peduncles hairy, usually twin. Calycine segments ciliated, foliaceous. Corollas purple, rotate. (*Don's Mill.*) A prostrate evergreen shrub. Kamtschatka and the Aleutian Islands, in muddy places on the mountains. Height 6 in. to 1 ft. Introduced in 1802, but rare in British gardens. Flowers purple; July.

1118 *R.* camtschàticum.

17. *R.* CHAMÆCI'STUS *L.* The Ground-Cistus Rhododendron.

*Identification.* Lin. Sp., 562.; Don's Mill., 3. p. 854.
*Engravings.* Bot. Mag., t. 488.; Bot. Cab., t. 1491.; and our *fig.* 1119.

*Spec. Char., &c.* Leaves oblong-lanceolate, attenuated at both ends, stiffish, glandularly ciliated. Peduncles usually twin, and, as well as the calyxes, beset with glandular hairs. Corollas rotate, pale purple. (*Don's Mill.*) A dwarf tufted evergreen shrub, with small leaves, about the size of those of a species of Heliánthemum. Alps of Austria, Carniola, Mount Baldo, and near Salzburg; and in Eastern Siberia. Height 6 in. Introd. 1786. Flowers purple; May and June



1119. *R.* Chamæcístus.

## § vi. *Pentanthèra* D. Don.

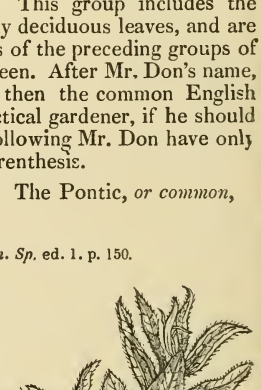
*Synonyme.* Azàlea *L.*
*Derivation.* From *pente*, five, and *anthēra*, an anther; flowers pentandrous.

*Sect. Char.* Limb of calyx short, 5-lobed. Corolla funnel-shaped. Stamens 5. Ovarium 5-celled. Leaves deciduous. This group includes the hardy azaleas of the gardens, which have mostly deciduous leaves, and are quite distinct in their appearance from the plants of the preceding groups of this genus, which are all evergreen and sub-evergreen. After Mr. Don's name, we have given the name previously applied, and then the common English name, leaving them to be adopted by the practical gardener, if he should think fit. At the same time, those who prefer following Mr. Don have only to pass over the names which we have put in parenthesis.

18. *R.* FLA'VUM *G. Don.* (AZA'LEA PO'NTICA *L.*) The Pontic, *or common*, Azalea.

*Identification.* Don's Mill., 3. p. 847.
*Synonymes.* Azàlea póntica *Lin. Sp.* 1669.; Azàlea arbòrea *Lin. Sp.* ed. 1. p. 150.
*Engravings.* Bot. Mag., t. 2383.; and our *fig.* 1120.

*Spec. Char., &c.* Flowers leafy, clammy. Leaves ovate oblong, pilose, ciliated. Corolla funnel-shaped. Stamens very long. (*Don's Mill.*) A deciduous shrub. Levant, Pontus, Caucasus, Asiatic Turkey, &c. Height 4 ft. to 6 ft. Introduced in 1793. Flowers yellow; May and June.


1120. *R* flàvum.

*Varieties and Hybrids.* There are a great number of varieties of this species in the gardens, differing principally in the colour of their flowers, and the hue of the leaves. The flowers of the species are of a fine bright yellow; but those of the varieties are of all shades, from yellow to copper, or orange colour; and they are sometimes of a pure white, or of white striped with yellow and red. Besides, as this species seeds freely, and is easily cross-fecundated with the North American species, an immense number of varieties of it have been originated in British and Continental gardens. The varieties and hybrids which are considered as belonging to Azàlea póntica, which are given in Loddiges's *Catalogue* for 1836, are the following, but new kinds are originated every year, and we therefore refer to the yearly catalogues of nurserymen.

| | | | | | |
|---|---|---|---|---|---|
| A. p. 2 álba. | 4 crocàta. | 6 flámmea. | 8 glaúca. | 10 ochroleùca. | 12 tricolor |
| 3 aurántia. | 5 cùprea. | 7 fúlgens. | 9 ignéscens. | 11 pállida. | |

19. *R.* NUDIFLO'RUM *Torr.* (AZA'LEA NUDIFLO'RA *L.*) The naked-flowered Azalea.

*Identification.* Torr. Fl. Un. St., 1. p. 140.; Don's Mill., 3. p. 847.

*Synonymes.* Azàlea nudiflòra *Lin. Sp.* 214.; Azàlea periclymenòides *Michx. Fl. Bor. Amer.* 1 p. 115.; the American Honeysuckle; May Flowers, and wild, or upright, Honeysuckle, *Amer. Engraving.* Our *fig.* 1121. from a living specimen.

*Spec. Char., &c.* Leaves lanceolate-oblong, nearly smooth, and green on both surfaces, ciliated on the margins, having the midrib bristly beneath, and woolly above. Flowers rather naked, not clammy, scarlet, pink, white, striped, variegated, red, purple, &c., disposed in terminal clustered racemes, appearing before the leaves. Tube of corolla longer than the divisions. Teeth of calyx short, rather rounded. Stamens much exserted. (*Don's Mill.*) A deciduous shrub. Canada to Georgia, on the sides of hills. Height 3 ft. to 4 ft. Introduced in 1734. Flowers of various colours; April to June. Capsule brown.

1121. *R.* nudiflòrum.

It is the parent of numerous varieties, and, in conjunction with the preceding species, of many beautiful hybrids.

*Varieties and Seedlings.*

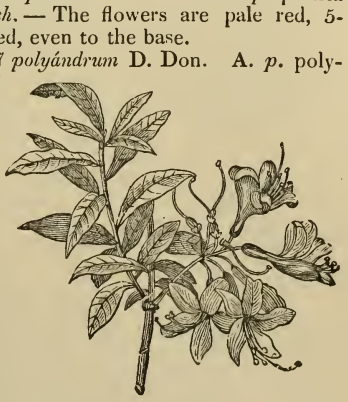
- R. *n.* 1 *coccíneum* D. Don. Azàlea n. coccínea *Sims Bot. Mag.* t 180. — Flowers scarlet, and the leaves lanceolate. It is a native of Georgia, near Savannah.

1122. *R.* n. rùtilans.

- R. *n.* 2 *rùtilans* D. Don. A. n. rùtilans *Ait. Hort. Kew.* p. 319.; A. periclymenòides rùtilans *Pursh. Fl. Amer. Sept.* i. p. 152., and our *fig.* 1122. — The flowers are deep red. Calyxes minute.
- R. *n.* 3 *cárneum* D. Don. A. n. cárnea *Ait.* l. c., *Bot. Reg.* t. 120.; A. *p.* cárnea *Pursh* l. c. — The corollas are pale red, having the tube red at the base, and the calyx foliaceous.
- R. *n.* 4 *álbum* D. Don. A. n. álba *Ait.* l. c.; A. *p.* álba *Pursh.*—The flowers white, and the calyx middle-sized.
- R. *n.* 5 *papilionàceum* D. Don. A. *p.* papilionàcea *Pursh.*—Flowers reddish, with the lower segment white, and the calyx foliaceous.
- R. *n.* 6 *partìtum* D. Don. A. *p.* partìta *Pursh.* — The flowers are pale red, 5-parted, even to the base.
- R. *n.* 7 *polyándrum* D. Don. A. *p.* polyándra *Pursh* l. c. — Flowers of a rose colour, short. Stamens 10—20. It is found near Philadelphia.

*Varieties and Hybrids* chiefly raised at High Clere.

- R. *n.* 8 *Goveniànum* *D. Don* (Brit. Fl.-Gard., iii. t. 263.; and our *fig.* 1123.) — The branches tomentosely downy. Leaves evergreen or deciduous, oblong, acute, downy while young, but glabrous in the adult state, and recurved at the apex. Tube of corolla a little shorter than



1123. *R.* n. Goveniànum.

the segments. Flowers delicate light purple, disposed in terminal racemose corymbs. It is a hybrid raised from the seed of A. nudiflòra impregnated by the pollen of a hybrid raised between *R.* pónticum and *R.* catawbiénse.

R. *n.* 9 *rùbrum* Lodd. Bot. Cab. t. 51.—Flowers red.

R. *n.* 10 *exímium* D. Don.—Raised, in 1829, from seeds of *R.* nudiflòrum coccíneum màjus, to which pollen of *R*hododéndron arbòreum had been applied. It resembles its female parent, having very little affinity with *R.* arbòreum, except in its evergreen leaves and decandrous flowers.

R. *n.* 11 *thyrsiflòrum* Bot. Reg. 1367., and our *fig.* 1124.—Raised at High Clere in 1835 or before.

R. *n.* 12 *scintíllans* Bot. Reg. 1461., and our *fig.* 1125.—Raised at High Clere in 1835 or before.

R. *n.* 13 *Seymoùri* Bot. Reg. 1975., and our *fig.* 1126.—Raised at High Clere in 1835 or before.

1124. *R.* n thyrsiflòrum.

1125. *R.* n. scintíllans.

1126. *R.* n Seymoùri.

*Varieties and Hybrids* assigned to A. nudiflòra in Loddiges's *Catalogue* for 1836 are the following: —

A. n. 2 álba et rùbra.
3 amœ'na.
4 blánda.
5 cárnea.
6 caroliniàna.
7 Cobúrgia.
8 coloràta.
9 conspícua.
10 críspa.
11 cùmula.
12 díscolor.
13 fastigiàta.
14 flòre plèno.
15 flórida.
16 globòsa.
17 grandiflòra.
18 incàna.
19 incarnàta.
20 mirábilis.
21 montàna.
22 ochroleùca.

1127. A. n. ròsea.

A. n. 23 pállida.
24 pallidòsa.
25 papilionàcea.
26 periclymenòides.
27 purpuráscens.
28 purpùrea.
29 ròsea. (*fig.* 1127.)
30 rubérrima.
31 rubicúnda.
32 rùbra.
33 rùfa.
34 rùtilans.
35 serótina.
36 stamínea.
37 stellàta.
38 tricolor.
39 vària.
40 variábilis.
41 variegàta.
42 versicolor.
43 violàcea.

20. *R.* (N.) BI'COLOR *G. Don.* (A. (N.) BI'COLOR *Pursh.*) The two-coloured-*flowered* Azalea.

*Identification.* Don's Mill., 3. p. 847.
*Synonymes.* Azàlea bícolor *Pursh Sept.* 1. p. 153.; Azàlea nudiflòra var. bícolor *Ait. Hort. Kew.* 1. p. 319.
*Engravings.* Trew Ehret, 48.; and our *fig.* 1128.

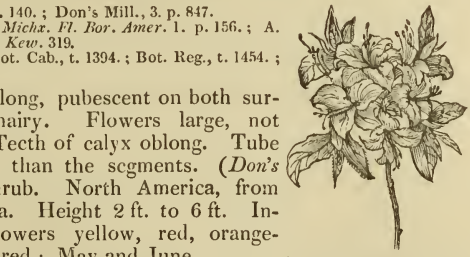
1128. *R* (n.) bícolor

*Spec. Char., &c.* Leaves oblong, clothed on both surfaces with fine hoary pubescence, not bristly on the nerve. Flowers small, not clammy, naked, smaller and more slender than those of most of the other species. Tube of corolla hardly longer than the segments. Calyxes very short; having one of

the segments linear, and 4 times longer than the rest. Filaments exserted. Branchlets hispid. (*Don's Mill.*) A deciduous shrub. Carolina and Georgia, on barren sandy hills. Height 3 ft. to 4 ft. Introduced in 1734. Flowers red and white ; May.

21. *R.* (N.) CALENDULA'CEUM *Torr.* (A. (N.) CALENDULA'CEA *Michx.*) The Marigold-*flowered* Azalea.

*Identification.* Torr. Fl. Un. St., p. 140. ; Don's Mill., 3. p. 847.
*Synonymes.* Azàlea calendulàcea *Michx. Fl. Bor. Amer.* 1. p. 156. ; A. nudiflòra var. coccinea *Ait. Hort. Kew.* 319.
*Engravings.* Bot. Mag., t. 172. ; Bot. Cab., t. 1394. ; Bot. Reg., t. 1454. ; and our *fig.* 1129.


1129. *R.* (n.) calendulàceum.

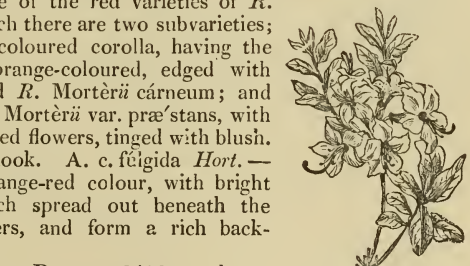
*Spec. Char., &c.* Leaves oblong, pubescent on both surfaces, but afterwards hairy. Flowers large, not clammy, rather naked. Teeth of calyx oblong. Tube of corolla hairy, shorter than the segments. (*Don's Mill.*) A deciduous shrub. North America, from Pennsylvania to Carolina. Height 2 ft. to 6 ft. Introduced in 1806. Flowers yellow, red, orange-coloured, or copper-coloured ; May and June.

*Varieties.*

R. *c.* 2 *Mortèrii Swt. Fl.-Gard.* 2d s. 10.—A hybrid between *R.* calendulàceum and one of the red varieties of *R.* nudiflòrum, of which there are two subvarieties; one with a flesh-coloured corolla, having the upper segment orange-coloured, edged with flesh-colour, called *R.* Mortèrii cárneum; and another, called *R.* Mortèrii var. præ'stans, with pale copper-coloured flowers, tinged with blush.

R. *c.* 3 *fúlgidum* Hook. A. c. fúlgida *Hort.*—Corollas of an orange-red colour, with bright green leaves, which spread out beneath the corymbs of flowers, and form a rich background to them.

R. *c.* 4 *lépidum* Bot. Reg. t. 1402, and our *fig.* 1130.—Raised at High Clere.


1130. *R. c.* lépidum.

22. *R.* CANE'SCENS *G. Don.* (A. CANE'SCENS *Michx.*) The canescent Azalea.

*Identification.* Don's Mill., 3. p. 848.
*Synonymes.* Azàlea canéscens *Mx. Fl. Bor.* 1. p. 150., *Ph. Sept.* 1. p. 152. ; A. viscòsa pubéscens *Lod.*
*Engraving.* Lodd. Bot. Cab. 441. ; and our *fig.* 2097. in p. 1108.

*Spec. Char., &c.* Leaves obovate-oblong, downy above, and tomentose beneath, not bristly on the middle nerve. Flowers not clammy, nearly naked. Tube of corolla hardly shorter than the segments. Teeth of calyx very short, rounded, obtuse. Stamens hardly exserted. (*Don's Mill.*) A deciduous shrub. Lower Carolina, on the banks of rivers. Height 3 ft. to 4 ft. Introduced in 1812. Flowers rose-coloured ; May and June.

23. *R.* VISCO'SUM *Torr.* (A. VISCO'SA *L.*) The clammy-*flowered* Azalea.

*Identification.* Torr. Fl. Un. St., p. 140. ; Don's Mill., 3. p. 847.
*Synonyme.* Azàlea viscòsa *Lin. Sp.* 214.
*Engraving.* Our *fig.* 1131.

1131. *R.* viscòsum.

*Spec. Char., &c.* Leaves oblong-obovate, acute, smooth and green on both surfaces, ciliated on the margins, having the midrib bristly. Flowers produced in terminal clusters ; and clammy, leafy, and hairy. Tube of corolla as long as the segments. Teeth of the calyx short, rounded. Stamens hardly longer than the corolla. (*Don's Mill.*) A deciduous shrub.

Canada to Georgia, in swamps and shady woods. Height 2 ft. to 6 ft. Introduced in 1734. Flowers white, sweet-scented; July and August.

*Varieties and Hybrids.*

R. *v.* 2 *ornàtum* Swt. Fl.-Gard. 2d s. t. 137. (and our *fig.* 1132.) — A hybrid raised from the seed of *R.* viscòsum β rubéscens, fertilised by the pollen of *R*hododéndron pónticum. It is evergreen or sub-evergreen, as are all the hybrids of similar parentage.

1132. *R.* v. ornàtum.

*The Varieties and Hybrids* of A. viscòsa, in Loddiges's *Catalogue* for 1836, are as follows: —

A. *Varieties.*

A. v. 2 álba.
3 crispa.
4 dealbàta.
5 penicillàta.
6 præ'cox.
7 pubéscens.
8 variegàta.
9 vittàta
10 *V*iolæ odòre.

B. *Hýbridæ altaclerénses. Hybrids raised at High Clere in* 1830 *or before.*

11 amœ'na.
12 actinàta.
13 Auròræ.
14 basilíssa.
15 calodéndron.
16 calocóryphe.
17 Cartòn*ia*. (*fig.* 1133.)
18 chariéssa.
19 coccínea nóbilis.
20 eudæ'mon.
21 eùprepes.
22 Govèn*ia*.
23 Herbert*iàna*.
24 imperàtrix.
25 íinclyta.
26 *j*asminodòra.
27 lépida.
28 ochroleùca.
29 poikíla.
30 póntica *Howard.*
héxapla.
31 pulchélla.
32 regàlis
33 rúgens.
34 thyrsiflòra.

1133. A. v. Cartòn*ia*.

C. *Hýbridæ bélgicæ. Hybrids raised in Belgium in* 1829 *or before.*

35 Agate.
36 álbo plèno.
37 amábilis.
38 *a*marántina.
39 amœníssima.
40 árdens.
41 àtro-rùbens.
42 aurántia máxima.
43 blandìna.
44 calendulàcea globòsa.
insígnis.
nòva.
supérba.
45 cardon.
46 coccínea máxima
speciòsa.
47 concínna.
48 corúscans.
49 *c*ròcea.
globòsa.
50 cruénta.
51 cùprea.
álba.
élegans.
exímia.
globòsa.
rùbra.
spléndens.
52 decoràta.
53 dècus hortòrum.
54 dulcèdo.
55 elécta.
elécta máxima.
rùbra.
56 elegantíssima.
57 exquisíta.
58 Ferróck*ii*.
59 flamboyante.
60 fúlgida.
61 fúlva.
62 glòria múndi.
máxima.
minor.
63 Guliélmus prìmus.
64 hýbrida coccífera.
coccínea.
nívea.
65 incarnàta máxima.
rùbra.
66 lépida.
67 lùtea rubicúnda.
68 magnífica.
69 maritima incarnàta.
70 miniàta.
71 mirábilis.
72 mixta triúmphans.
73 mónica.
74 Mortèr*ii*.
75 nè plús últra.
76 nóbilis.
77 nóritas antillércens.
78 noritàta.
79 óptima.
80 ornàta pállida.
81 picturàta.
82 póntica globòsa.
Konink.
tricolor var.
83 præstantíssima.
84 pulchélla.
85 punícea.
86 récqui.
87 regìna bélgica.
88 restantíssima.
89 rígida incarnàta.
90 robústa.
91 rùbra aurántia.
fúlva.
92 rubricàta.
93 sanguínea.
94 Satúrn*i*.
95 sevèra.
96 speciòsa.
97 speciosíssima.
98 spléndens.
99 spléndida.
100 sulphùrea.
101 supérba.
102 tricolor Jacòb*i*.
Wolff.
103 triúmphans
104 variegàta.
105 venústa.
106 venustíssima.
107 versicolor.

24. *R.* (v.) GLAU'CUM *G. Don.* (A. (v.) GLAU'CA *Pursh.*) The glaucous-*leaved* Azalea.

*Identification.* Don's Mill., 3. p. 848.
*Synonymes.* Azàlea glaùca *Pursh Sept.* 1. p. 154.; Azàlea viscòsa var. floribúnda *Ait. Hort. Kew.* 1. p. 319.
*Engravings.* Dend. Brit., t. 5.; and our *fig.* 1134.

*Spec. Char., &c.* Branchlets hispid. Leaves oblanceolate, acute, glabrous on both surfaces, glaucous beneath, ciliated on the margins, having the midrib bristly. Flowers very clammy, leafy. Tube of corolla twice longer than the segments. Calyx very short. Filaments about equal in length to the segments of the corolla. (*Don's Mill.*) A deciduous shrub. New England to Virginia, in swamps in clayey soil. Height 2 ft. Introduced in 1734. Flowers white; June and July.

1134. *R.* (n.) glaúcum.

This shrub is dwarfer than any of the other North American species of Azàlea; and it produces its fragrant white flowers in great abundance. Nuttall considers it as only a variety of *R.* viscòsum, differing in nothing but in the under surface of the leaves being glaucous; in which opinion we concur.

25. *R.* (v.) HI'SPIDUM *Torr.* (A. (v.) HI'SPIDA *Pursh.*) The hispid Azalea.

*Identification.* Torr. Fl. Un. St., p. 140.; Don's Mill., 3. p. 847.
*Synonymes.* Azàlea hispida *Pursh Sept.* 1. p. 154.; Azàlea viscòsa var. glaúca *Ait. Hort. Kew.* 1. p. 319. ?
*Engravings.* Dend. Brit., t. 6.; and our *fig.* 1135.

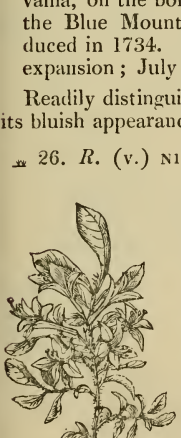
*Spec. Char., &c.* Branches straight, very hispid. Leaves long-lanceolate, hispid above, and smooth beneath, glaucous on both surfaces, ciliated on the margins, having the nerves bristly beneath. Stamens 5—10. Flowers very clammy, leafy. Tube of corolla wide, scarcely longer than the segments. Teeth of calyx oblong, rounded. Filaments exserted. (*Don's Mill.*) A deciduous shrub. New York and Pennsylvania, on the borders of lakes on the highest part of the Blue Mountains. Height 10 ft. to 15 ft. Introduced in 1734. Flowers white, rose-coloured before expansion; July and August.

1135. *R.* (v.) hispidum.

Readily distinguished from the other hardy azaleas by its bluish appearance.

26. *R.* (v.) NI'TIDUM *Torr.* (A. NI'TIDA *Pursh.*) The glossy-*leaved* Azalea.

*Identification.* Torr., l. c.; Don's Mill., 3. p. 847.
*Synonyme.* Azàlea nitida *Pursh Fl. Amer. Sept.* 1. p. 153.
*Engravings.* Bot. Reg., t. 414.; and our *fig.* 1136.



1136. *R.* (v.) nitidum.

*Spec. Char., &c.* Branches smoothish. Leaves oblanceolate, rather mucronate, coriaceous, smooth on both surfaces, shining above, having the nerve bristly beneath, with revolute ciliated margins, smaller than in any other species. Flowers clammy, leafy. Tube of corolla a little longer than the segments. Calyx very short. Filaments exserted. (*Don's Mill.*) A deciduous shrub. New York to Virginia, in deep mossy swamps on the mountains. Height 2 ft. to 4 ft. Introduced in 1812. Flowers white, tinged with red; June and July. Capsule brown.

27. *R.* SPECIO'SUM *G. Don.* (A. SPECIO'SA *Willd.*) The showy Azalea.

*Identification.* Don's Mill., 3. p. 848.
*Synonymes.* Azàlea speciòsa *Willd. Enum.* p. 10.; A. coccínea *Lodd. Bot. Cab.* t. 624.
*Engravings.* Bot. Cab., t. 624.; Dend. Brit., t. 116.; and our *fig.* 1137.

1137. *R* speciosum

*Spec. Char., &c.* Branches hairy. Leaves lanceolate, ciliated, acute at both ends. Calyx pubescent. Corolla silky, with obtuse, ciliated, lanceolate, undulated segments,

Stamens exserted. (*Don's Mill.*) A deciduous shrub. North America. Height 2 ft. to 6 ft. Introduced in 1812. Flowers scarlet; June and July

28. *R.* ARBORE'SCENS *Torr.* (A. ARBORE'SCENS *Pursh.*) The arborescent Azalea.

*Identification.* Torr., l. c.; Don's Mill., 3. p. 847.
*Synonymes.* Azàlea arboréscens *Pursh Fl. Amer. Sept.* 1. p. 153.; A. arbòrea *Bart. Cat.*
*Engravings.* Our *fig.* 1138. from a specimen in the herbarium of Professor DeCandolle.

*Spec. Char., &c.* Leaves obovate, rather obtuse, smooth on both surfaces, glaucous beneath, ciliated on the margins, having the midrib almost smooth. Flowers not clammy, leafy. Tube of corolla longer than the segments. Calyx leafy, with the segments oblong and acute. Filaments exserted. (*Don's Mill.*) A deciduous shrub or low tree. Pennsylvania. Height 10 ft. to 15 ft. Introduced in 1818. Flowers rose-coloured; June and July.

1138. *R.* arboréscens.

Pursh says it forms, with its elegant foliage, and large, abundant, rose-coloured flowers, the finest ornamental shrub he knows. The flowers are not so pubescent as those of the other species. The scales of the flower buds are large, yellowish brown, and surrounded with a fringed white border.

## § vii. *Rhodòra* D. Don.

*Identification.* Don's Mill., 3. p. 848.
*Derivation.* From *rhodon*, a rose; in reference to the colour of the flowers.

*Sect. Char.* Limb of calyx 5-toothed. Corolla bilabiate; upper lip broadest, and 2—3-cleft; lower one bidentate. Stamens 10. Capsule 5-celled, 5-valved. Leaves deciduous. (*Don's Mill.*)

29. *R.* RHODO'RA *G. Don.* (RHODO'RA CANADE'NSIS *L.*) The Canada Rhodora.

*Identification.* Don's Mill., 3. p. 843.
*Synonyme.* Rhodòra canadénsis *Lin. Sp.* 561.
*Engravings.* Bot. Mag., t. 474.; and our *fig.* 1139.

*Spec. Char., &c.* Leaves oval, quite entire, pubescent and glaucous beneath. Flowers in terminal clusters or racemose umbels, pale purple, and protruded before the leaves. (*Don's Mill*) An erect deciduous shrub. Canada, Newfoundland, and on the mountains of New York and Pennsylvania, in bogs. Height 2 ft. Introduced in 1767. Flowers pale purple; April and May. Capsules brown; ripe in August.

1130. *R.* Rhodòra.

## GENUS XXII.

KA'LM*IA* L. THE KALMIA. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Lin. Gen., No. 545.; Don's Mill., 3. p. 850.
*Synonyme.* American Laurel.
*Derivation.* Named by Linnæus in honour of *Peter Kalm*, professor at Abo, in Sweden; author of *Travels in America in* 1753.

*Gen. Char.* *Calyx* 5-parted. *Corolla* salver-shaped; under side of limb producing 10 cornute protuberances, and as many cavities on the upper side, in

which the anthers lie, or are concealed. *Capsule* 5-celled, many-seeded; dissepiments marginal. (*Don's Mill.*)

*Leaves* simple, alternate, or ternately verticillate, exstipulate, entire, evergreen; buds naked. *Flowers* in terminal, racemose, compound corymbs, but in K. hirsùta solitary and axillary. *Pedicels* long, 1-flowered, tribracteate at the base; external bractea originating from the rachis. *Anthers* opening by two oblique truncate pores. — Undershrubs, evergreen; natives of North America; poisonous in all their parts, and often fatal to cattle.

1. K. LATIFO'LIA *L.* The broad-leaved Kalmia.

*Identification.* Lin. Sp., 560.; Pursh Sept., 1. p. 296.; Don's Mill., 3. p. 850.
*Synonymes.* Mountain Laurel, Calico Bush, Calico Flower, *Amer.*
*Engravings.* Bot. Mag., t. 175.; Schmidt Baum., t. 166.; and our *fig.* 1140.

1140. K. latifòlia.

*Spec. Char., &c.* Leaves on long petioles, scattered or 3 in a whorl, oval, coriaceous, smooth, and green on both surfaces. Corymbs terminal, downy, and viscid. (*Don's Mill.*) An evergreen glabrous shrub. Canada to Carolina, on the sides of stony hills. Height 3 ft. to 10 ft. Introduced in 1734. Flowers white, tinted with pale pink, delicately spotted; June and July

This shrub, in its native soil, continues flowering great part of the summer; but it is only in particular places where it thrives. These are generally rocky, sterile, and near water. Leaves of this species are poisonous to cattle and sheep, but not to deer.

2. K. ANGUSTIFO'LIA *L.* The narrow-leaved Kalmia.

*Identification.* Lin. Sp., 561.; Pursh Sept., 1. p. 296.; Don's Mill., 3. p. 850.
*Synonyme.* Sheep Laurel, *Amer.*
*Engravings.* Bot. Mag., t. 331.; Bot. Cab., t. 502.; and our *fig.* 1141.

1141. K. angustifòlia.

*Spec. Char., &c.* Leaves petiolate, scattered or 3 in a whorl, oblong, obtuse, rather rusty beneath. Corymbs lateral. Bracteas linear. Peduncles and calyxes clothed with glandular pubescence. (*Don's Mill.*) A low shrub. Canada to Carolina, in bogs, swamps, and sometimes in dry mountain lands. Height 1 ft. to 2 ft. Introduced in 1736. Flowers dark red; May to July. Capsule brown; ripe in September.

*Variety.*

*K. a.* 2 *ovàta* Pursh Fl. Amer. Sept. i. p. 296. — A native of New Jersey, on the mountains, with broader leaves and a taller stem than the species.

3. K. GLAU'CA *Ait.* The glaucous-*leaved* Kalmia.

*Identification.* Ait Hort. Kew., ed. 2. p. 64.; Pursh Sept., 1. p. 296.; Don's Mill., 3. p. 850.
*Synonyme.* K. polifòlia *Wangh. Act. Soc. Berol.* 8. p. 129. t. 5.
*Engravings.* Bot. Mag., t. 177.; Bot. Cab., t. 1508.; and our *fig.* 1142.

1142 K. glaùca.

*Spec. Char., &c.* Branchlets somewhat 2-edged. Leaves opposite, on short petioles, oblong, smooth, glaucous beneath, with revolute edges. Corymbs terminal, compound, bracteate. Pedicels and calyxes glabrous. (*Don's Mill.*) A very handsome, upright, small shrub. Canada, in bogs, and on the borders

of the mountain lakes of New York and Pennsylvania, and of the Island of Sitcha. Height 1 ft. to 2 ft. Introduced in 1767. Flowers pale red; April and May. Capsule brown; ripe in September.

*Variety.*

♃ *K. g.* 2 *rosmarinifòlia* Pursh Fl. Amer. Sept. i. p. 296. — Leaves linear, more revolute on the margins, and having the under surface green.

The flower is comparable to a miniature parasol: the corolla to the covering, the stamens to the rays that keep the covering distended, and the style to the handle.

♃ 4. K. CUNEA'TA *Michx.* The wedge-shaped-*leaved* Kalmia.

1143. K. cuneàta.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 257.; Pursh Sept., 1. p. 296.; Don's Mill, 3. p. 850.
*Engravings.* Our *fig.* 1143. from a specimen in the Museum of the Jardin des Plantes.

*Spec. Char., &c.* Leaves scattered, sessile, cuneate-oblong, glandularly pubescent beneath, minutely armed at the apex. Corymbs lateral, few-flowered. Branches twiggy, disposed in sessile, lateral, fastigiate clusters. (*Don's Mill.*) A small evergreen shrub. Carolina, on mountains. Height 1 ft. to 2 ft. Introduced in 1820. Flowers white, and red at the bottom; May and June. Capsule brown; ripe in September.

♃ 5. K. HIRSU'TA *Walt.* The hairy Kalmia.

1144. K. hirsùta.

*Identification.* Walt. Fl. Carol., 138.; Pursh Sept., 1. p. 296.; Michx. Fl. Bor. Amer., 1. p. 257.
*Synonyme.* K. ciliàta *Bartr. Itin.* 18.
*Engravings.* Bot. Mag., t. 138.; and our *fig.* 1144.

*Spec. Char., &c.* Branches, leaves, and calyxes very hairy. Leaves opposite and alternate, almost sessile, elliptic. Peduncles axillary, solitary, 1-flowered, longer than the leaves. (*Don's Mill.*) A beautiful little shrub. South Carolina and Georgia, in barren pine woods. Height 2 ft. to 3 ft. Introduced in 1786. Flowers large, red; June to August. Capsule brown; ripe in October.

Somewhat difficult to cultivate in British gardens.

## GENUS XXIII.

MENZIE'SIA Smith. THE MENZIESIA. *Lin. Syst.* Octándria Monogýnia.

*Identification.* Smith Icon. ined., 56.; D. Don in Ed. Phil. Journ., 17. p. 170.
*Derivation.* Named in honour of *Archibald Menzies*, F.L.S., &c., surgeon and naturalist to the expedition under Vancouver; in which he collected many specimens of plants on the north-west coast of America, New Holland, Van Diemen's Land, &c.

*Gen. Char.* *Calyx* 4-lobed. *Corolla* tubular or globose; limb very short, 4-lobed, revolute. *Stamens* 8, enclosed. *Filaments* subulate, glabrous. *Cells* of anthers parallel, connate, mutic at the base, and opening each by an oblique foramen at the apex. *Stigma* obtuse. *Capsule* ligneous, 4-celled, with a septicidal dehiscence. *Placentæ* 4-lobed. *Seeds* scobiform. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous; very small, membranous, glaucous beneath. *Flowers* in numerous terminal 1-flowered fascicled pedicels. — Undershrubs, deciduous; natives of North America.

1. M. FERRUGI'NEA *Smith.* The rusty-*flowered* Menziesia

*Identification.* Smith Icon. ined., 1. p. 56. t. 56.; Pursh Sept., 1. p. 264.; Don's Mill., 3. p. 850.
*Synonyme.* M. urceolàris *Salisb. Par. Lond.* No. 44.
*Engravings.* Smith Icon. ined., 1. p. 56. t. 56.; and our *fig.* 1145.

*Spec. Char., &c.* Corolla urceolate, with rounded lobes. Leaves and branches hairy. Leaves obovate-lanceolate. (*Don's Mill.*) A deciduous shrub. North-west coast of America, particularly on the Columbia River, and on the Island of Sitcha. Height 3 ft. to 4 ft. Introduced in 1811. Flowers rusty colour; May and June.

1145. M. ferrugìnea.

2. M. GLOBULA'RIS *Salisb.* The globular-*flowered* Menziesia.

*Identification.* Salisb. Par. Lond., t. 44.; Pursh Sept., 1. p. 264.; Don's Mill., 3. p. 850.
*Synonymes.* M. Smithii Michx. Fl. Bor. Amer. p. 235.; Azàlea pilòsa *Lam. Ill.* 494.; M. pilòsa *Pers. Ench.* 1. p. 420.
*Engraving.* Our *fig.* 1146.

*Spec. Char., &c.* Corolla globose, with rounded lobes. Leaves and branches hairy. Leaves lanceolate. (*Don's Mill.*) A deciduous shrub. Virginia and Carolina, on high mountains; plentiful on the Cacapoore Mountains, near Winchester, in Virginia. Height 3 ft. to 5 ft. Introduced in 1806. Flowers yellowish brown.

1146. M. globulàris.

## GENUS XXIV.

AZA'LEA *D. Don.* THE AZALEA. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* D. Don in Edinb. Phil. Journ.; Don's Mill., 3. p. 820.
*Synonymes.* Azàlea procúmbens *Lin.* and many authors; Loiseleùria Desf.; Chamælèdon *Link Enum.* 1. p. 210.
*Derivation.* From *azaleos*, dry, or arid; in reference to the habitation of the plant.

*Gen. Char. Calyx* 5-parted. *Corolla* short, campanulate, 5-cleft. *Stamens* 5, equal, shorter than the corolla. *Cells* of anthers opening by a terminal pore. *Styles* straight, enclosed. *Capsule* 5-celled, with 5-cloven pointed valves, whose inflexed edges form the double partitions. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, evergreen; small, elliptic, glabrous, with revolute margins. *Flowers* pedicellate, rising in fascicles from the axils of the upper leaves, small, red.—A shrub, evergreen, procumbent, small, glabrous, with the habit of wild thyme; native of Europe and North America, on mountains.

1. A. PROCU'MBENS *L.* The procumbent Azalea.

*Identification.* Lin. Sp., 205.; Pursh Fl. Amer. Sept., 1. p. 154.; Don's Mill., 3. p. 851.
*Synonymes.* Chamælèdon procúmbens *Link Enum.* 1. p. 210.; Loiseleùria procúmbens *Desf.*
*Engravings.* Eng. Bot., t. 865.; Bot. Cab., t. 762.; Bot. Misc., 2. p. 64. t 53.; and our *fig.* 1147. from Lod. Bot. Cab., and *fig.* 1148. from N. Duham.

*Spec. Char., &c.* See Gen. Char. A procumbent evergreen shrub. Europe, on mountains; plentiful in the Highlands of Scotland, and in the alpine regions of different parts of North America. Height 6 in. Flowers small, rose-coloured; April and May.

1147. A. procúmbens.

1148. A. procúmbens.

Requires to be grown in sandy peat, either in a border or in pots, and in an airy situation.

## Genus XXV.

### LEIOPHY'LLUM *Pers.* The Leiophyllum. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Pers. Ench., 1. p. 477.; Spreng. Syst., 2. p. 276.; Don's Mill., 3. p. 851.
*Synonymes.* Ammýrsine *Pursh Sept.* 1. p 280.; Fischer*a* Swartz; Lèdum *b*uxifòlium *Berg., Ait.*
*Derivation.* From *leios*, smooth, and *phullon*, a leaf; in reference to the smoothness of the leaves.

*Gen. Char. Calyx* deeply 5-parted. *Corolla* 5-petaled. *Stamens* 10, exserted. *Anthers* opening by 2 terminal pores. *Capsule* 5-celled, 5-valved, dehiscing at the apex. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; small, convex, oval, glabrous, shining. *Flowers* white, disposed in terminal corymbs.—A shrub, small, erect, bushy, very ornamental from the delicacy of its leaves and the abundance of its white flowers; native of North America, on mountains.

♃ 1. L. thymifo'lium *Pers.* The Thyme-leaved Leiophyllum.

*Identification.* Pers. Ench., 1. p. 477.; Spreng. Syst., 2. p. 215.; Don's Mill., 3. p. 831.
*Synonymes.* Lèdum *b*uxifòlium *Bergius* in *Act. Petrop.* 1779 p. 1. t. 3. f. 2.; Lèdum *t*hymifòlium *Lam. Dict.* 3. p. 459.; Lèdum serpyllifòlium *L'Hérit. Stirp. Nov.* 2. t. 10.; Ammýrsine *b*uxifòlia *Pursh Sept.* 1. p. 301.; Sand Myrtle, *New Jersey.*
*Engravings.* Bot. Reg., t. 531.; Bot. Cab., t. 52.; and our *fig.* 1149.

*Spec. Char., &c.* See Gen. Char. An elegant little evergreen shrub. New Jersey, and the mountains of Carolina, particularly on the highest summits of the Catawba ridge. Height 6 in. to 1 ft. Introduced in 1736. Flowers white, rendering it highly ornamental; May and June.

1149. L. thymifòlium.

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*L. prostràtum.* Ammýrsine prostràta *Swt., Loud. Hort. Brit.* No. 28221.; A. Lyòn *m* Swt. Hort. Brit. ed. 1830 p. 344.—Branches spreading. Leaves oblong.

## Genus XXVI.

### LE'DUM *L.* The Ledum. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Lin. Gen., No. 546.; Gærtn. Fruct., 2. p. 145. t. 112.; Juss. Gen., 159., Nutt. Gen. Amer., 1. p. 275.
*Derivation.* *Ledon* was the name applied by the ancients to a plant producing the substance called labdanum, and now known by the name of *C*istus *L*èdon. In foliage, the *L*èdum of modern botanists bears some distant resemblance to the plant of the ancients.

*Gen. Char. Calyx* minute, 4-toothed. *Corolla* 5-petaled; spreading. *Stamens* 5—10, exserted. *Anthers* opening by two terminal pores. *Capsule* sub-ovate, 5-celled, 5-valved, opening at the base, pedicellate. *Seeds* numerous, flat, linear, scabrous, furnished with a membranous wing at each extremity. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, evergreen; coriaceous, with revolute margins, and tomentose on the under surface. *Flowers* white, disposed in terminal corymbs; pedicels bracteate at the base.—Shrubs, evergreen, low, procumbent, or dwarf, exhaling a peculiar scent when bruised; natives of Europe or North America.

1. *L.* PALU'STRE *L.* The Marsh Ledum.

*Identification.* Lin. Sp., 651.; Pursh Sept., 1. p. 300.; Don's Mill., 3. p. 851.
*Synonymes.* Lèdum silesiacum *Clus. Pan.* 68.; Rosmarinum sylvestre *Cam. Epit.* 546.
*Engravings.* Schmidt Baum., t. 136.; Bot. Cab., t. 560.; and our *fig.* 1150.

*Spec. Char., &c.* Leaves linear, with revolute margins, clothed with rusty tomentum beneath. Stamens 10, longer than the corolla. Leaves resembling those of rosemary. (*Don's Mill.*) An erect evergreen shrub. Canada, in swamps, and round the mountain lakes of New York; in Kotzebue's Sound, &c.; also the North of Europe, as Denmark, Silesia, &c. Height 2 ft. Introduced in 1762. Flowers white; April and May.

1150. *L.* palústre.

*Variety.*

L. *p.* 2 *decúmbens* Ait. Hort. Kew. ed. 2. vol. iii. p. 48. — A decumbent shrub, a native of Hudson's Bay.

2. *L.* LATIFO'LIUM *Ait.* The broad-leaved Ledum, *or Labrador Tea.*

*Identification.* Ait. Hort. Kew., 2. p. 65.; Pursh Sept., 1. p. 300.; Don's Mill., 3. p. 851.
*Synonymes.* *L.* grœnlándicum *Retz. Obs.* 4. p. 26.; *L.* palústre *Michx. Fl. Bor. Amer.* 1. p. 259.; Labrador Tea, *Amer.*
*Engravings.* Schmidt Baum., t. 164.; Bot. Cab., t. 534.; and our *fig.* 1151.

*Spec. Char., &c.* Leaves linear-oblong, with replicate margins, clothed with rusty tomentum beneath. Stamens 5, about the length of the corolla. Flowers white. (*Don's Mill.*) A larger and broader-leaved evergreen shrub than *L.* palústre. Canada, in mossy swamps; and Greenland, Labrador, Newfoundland, and Hudson's Bay. Height 2 ft. to 4 ft. Introduced in 1763. Flowers white; April and May.

The leaves are said to be used in Labrador, as a substitute for tea. Bees are very fond of the flowers.

1151. *L.* latifòlium.

1152. *L.* canadénse.

3. *L.* CANADE'NSE *Lodd.* The Canadian Ledum.

*Identification.* Lodd. Bot. Cab., t. 1040.; Don's Mill., 3. p. 851.
*Engravings.* Lodd. Bot. Cab., t. 1049.; and our *fig.* 1152.

*Spec. Char., &c.* Leaves ovate-petiolate, white beneath. Flowers disposed in terminal umbellate corymbs, large. (*Don's Mill.*) A low evergreen shrub. Canada, in swamps. Height 6 in. Introduced in 1812. Flowers white; April and May.

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## Sect. III. *V*ACCINIE'Æ *D. Don.*

*Identification.* D. Don in Edinb. Phil. Journ., 17. p. 152.; Don's Mill., 3. p. 851.

*Sect. Char., &c.* Anthers 2-celled. Ovary connate with the calyx. Disk perigynous, nectariferous. Fruit baccate. Gemmation scaly. The genera in this section agree with *V*accínium in the ovary adhering to the calyx. (*Don's Mill.*) Deciduous and evergreen shrubs, natives of Europe and North America; cultivated in peat soil, and propagated, generally, by division of the plant, but sometimes by layers, and, when necessary, by cuttings or seeds.

## Genus XXVII.

### VACCI'NIUM *L.* The Whortleberry. *Lin. Syst.* Oct-Decándria Monogýnia.

*Identification.* Lin. Gen., 191. ; Ait. Hort. Kew., 2. p. 355. ; Pursh Fl. Bor. Amer., 1. p. 282 ; Juss. Gen., 162. ; Nutt. Gen. Amer., 1. p. 263. ; Lam. Ill., 286. ; Gærtn. Fruct., t. 28. ; Don's Mill., 3. p. 851.
*Synonymes.* Vitis idæ'a *Tourn. Inst.* t. 377. ; Airelle, *Fr.* ; Heidelbeere, *Ger.*
*Derivation.* An ancient Latin name, but whether of a berry or a flower has been a point in dispute among critics, as well as its etymology.

*Gen. Char. Calyx* 4—5-toothed. *Corolla* urceolate or campanulate, more or less deeply 4—5-cleft; limb reflexed. *Stamens* 8—10, hypogynous. *Anthers* 2-horned, dehiscing at the summits, and sometimes furnished at the back with two spreading spines or bristles. *Style* longer than the stamens. *Stigma* obtuse. *Berry* globose, depressed at top, 4—5-celled, many-seeded. (*Don's Mill.*)

*Leaves* simple, alternate, stipulate, deciduous or evergreen ; membranous, often beset with resinous dots. *Flowers* pedicellate, and solitary, simply racemose, or tufted, drooping, inodorous, tinted with various shades of red or pink, never blue, scarcely yellowish, generally very elegant. *Berries* black, purple, bluish, or red, generally eatable.— Shrubs, low, suffruticose, gemmaceous, natives of Europe or North America.

The species are in a good deal of confusion, from the whole of them never having been studied together in the same garden. We have followed the arrangement of G. Don, as the latest and best, not having had an opportunity ourselves of examining all the species said to be in cultivation in British gardens.

A. *Leaves deciduous.*

a. *Pedicels* 1-*flowered, usually solitary, rarely twin, or fasciculate.*

1. *V.* Myrti'llus *L.* The Little-Myrtle-*like* Whortleberry, *or common Bilberry, or Bleaberry.*

*Identification.* Lin. Sp., 498. ; Smith Engl. Fl., 2. p. 219. ; Don's Mill., 3. p. 851.
*Engravings.* Engl. Bot., t. 456. ; Fl. Dan., t. 974. ; and our *fig.* 1153.

*Spec. Char., &c.* Pedicels solitary, 1-flowered. Leaves serrated, ovate, smooth. Stem acutely angular, smooth. Calyx hardly divided. Corolla globose generally 5-cleft, of a very delicate, waxy, pink hue. (*Don's Mill.*) A low deciduous shrub. North of Europe, on heaths, stony moors, and mountain woods ; North of Africa and Asia ; and at Nootka Sound and Nova Scotia, in America. Plentiful in Britain and Ireland, and also in Iceland ; and procumbent about the subalpine zone in England, where it rarely produces flowers. Height 6 in. to 2 ft. Flowers delicate, waxy, pink ; May. Berries bluish black, about the size of currants, and covered with a mealy bloom ; ripe in October.

1153. *V.* Myrtillus.

*Variety.*

V. *M.* 2 *báccis álbis* Booth has white fruit. Plants of this variety were discovered in 1835 in the Black Forest.

The berries are eaten in tarts, or with cream, or made into jelly, in the northern and western counties of England and Scotland ; and, in other parts of the country, they are made into pies and

puddings. Their juice has been employed to stain paper or linen purple. In autumn, many kinds of game live upon them, and the plant affords them shelter. In gardens, it may be cultivated in sandy peat, kept moist, in a situation airy, but somewhat shaded.

### 2. *V.* ULIGINO'SUM *L.* The Bog Whortleberry, *or great Bilberry.*

*Identification.* Lin. Spec., 499.; Smith Eng. Fl., 2. p. 210.; Don's Mill., 3. p. 851.
*Synonyme.* Myrtillus grándis *Bauh. Hist.* 1. p. 518.
*Engravings.* Fl. Dan., t. 231. Eng. Bot., t. 581.; and our *fig.* 1154.

*Spec. Char., &c.* Pedicels somewhat aggregate, 1-flowered. Leaves obovate, entire, smooth. Branches terete. Taller than the common bilberry, and of a more glaucous hue. Leaves glaucous beneath. Flowers flesh-coloured, with 8 long-horned stamens. (*Don's Mill.*) A low deciduous shrub. North of Europe, North America, and North of Asia, in marshy mountain heaths and alpine bogs. Height 1 ft. to 2 ft. Flowers flesh-coloured; April and May. Berries large, juicy, black, and covered with a mealy bloom; ripe in October.

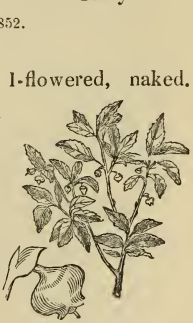
1154. *V. uliginosum.*

The berries are agreeable, but inferior in flavour to those of *V.* Myrtíllus; eaten in large quantities, they occasion giddiness, and a slight headache. In France they are used to colour wines red; and in Siberia and Sweden they furnish an ardent spirit that is highly volatile and intoxicating. They afford excellent sustenance to game. In gardens, it may be cultivated like the preceding species.

### 3. *V.* ANGUSTIFO'LIUM *Ait.* The narrow-leaved Whortleberry.

*Identification.* Ait. Hort. Kew., ed. 2., vol. 2. p. 356.; Don's Mill., 3. p. 852.
*Synonyme.* *V.* myrtillóides *Michx. Fl. Bor. Amer.* 1. p. 234.
*Engravings.* Bot. Mag., t. 3447.; and our *fig.* 1155.

*Spec. Char., &c.* Pedicels scattered, mostly solitary, 1-flowered, naked. Leaves lanceolate, nearly entire, downy at the ribs and margins. Berries large, and known by the name of bluets. (*Don's Mill.*) A low deciduous shrub. Canada, about Hudson's Bay and Labrador; and the high alpine woods of the Rocky Mountains, from the Atlantic to the Pacific. Height 1 ft. to 2 ft. Introduced in 1776. Flowers flagon-shaped, yellowish green, or white tinged with red; April and May. Berries large, globose, blackish purple, highly esteemed by the inhabitants of the countries where the plant is indigenous; ripe in October.


1155. *V. angustifolium.*

### 4. *V.* CÆSPITO'SUM *Michx.* The tufted Whortleberry

*Identification.* Michx. Fl. Bor. Amer., 1. p. 234.; Don's Mill., 3. p. 852.
*Engravings.* Bot. Mag., t. 3429.; and our *fig.* 1156.

*Spec. Char., &c.* Flowers lateral, solitary, nearly sessile. Leaves somewhat wedge-shaped, rounded, obtuse, serrated, membranous, very smooth. A little shrub, with many crowded stems, from 2 in. to 4 in. high, very smooth in every part. Corolla of a short urceolate form. Berries nearly sessile, globose. (*Don's Mill.*) A small deciduous shrub, with crowded stems. Hudson's Bay, in the Island of Sitcha, and on the Rocky Mountains. Height 6 in. Introduced in 1823. Flowers numerous, exceedingly delicate and beautiful, white, with a deep tinge of blush; May. Berry blue black, with a glaucous bloom; ripe in October.

1156. *V. cæspitosum.*

b. *Flowers in sessile Tufts.*

5. *V. GALE'ZANS* Michx. The Gale-like Whortleberry.

*Identification.* Mich. Fl. Bor. Amer., 1. p. 232.; Don's Mill., 3. p. 853.
*Synonyme.* *V. galiformis Smith* in *Rees's Cycl.* No. 16.
*Engraving.* Our *fig.* 1157. from a specimen in the Lambertian herbarium.

1157. *V. galèzans.*

*Spec. Char., &c.* Flowers on very short stalks, in sessile tufts. Leaves sessile, lanceolate-wedge-shaped, slightly serrated, downy. Calyx pointed. Corollas ovate, much contracted at the mouth. Style prominent. Michaux describes this shrub as having the aspect of *Myrica Gàle*, with slight downy branches. Leaves varying. The pedicels, shorter than the flowers, burst from a bud composed of numerous crowded scales. (*Don's Mill.*) A low deciduous shrub. Virginia and Carolina, in shady woods and swamps. Height 2 ft. Introduced in 1806. Flowers yellowish white; May and June. Berry small, globular, black; ripe in October.

6. *V.* TENE'LLUM *Ait.* The delicate Whortleberry.

*Identification.* Ait. Hort. Kew., ed. 2., vol. 2. p. 358.; Don's Mill., 3. p. 853.
*Synonyme.* *V.* pennsylvánicum *Lam. Dict.* p. 74.
*Engravings.* Dend. Brit., t. 35.; Bot. Mag., t. 3434.; our *fig.* 1158. from Watson, and *fig.* 1159. from Bot. Mag.

1158. *V. tenéllum.*

*Spec. Char., &c.* Flowers in dense sessile tufts. Leaves nearly sessile, ovate-lanceolate, acuminated, finely serrated, smooth, except the rib and margins. Branches angular, with a downy line on each side. Calyx of 5 deep acute segments. (*Don's Mill.*) A low, very branching, deciduous shrub. New England to Virginia, on dry hills, on gravelly soil. Height 2 ft. Introduced in 1772. Flowers pale red or white; May. Berries large, bluish black, extremely sweet and pleasant; ripe October.

1159. *V. tenéllum.*

*Variety.* The mountains of Pennsylvania produce an immense variety of this species, remarkable for the size and shape of the fruit, leaves, and flowers. Leaves sometimes 1 in. long. (*Don's Mill.*)

7. *V.* LIGU'STRINUM *Michx.* The Privet-like Whortleberry.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 283.; Don's Mill., 3. p. 853.
*Engraving.* Our *fig.* 1160. from a specimen in the Lambertian herbarium.

1160. *V. ligústrinum.*

*Spec. Char., &c.* Flowers in tufts, and nearly sessile; as are the leaves, which are also erect, lanceolate, mucronate, finely serrated, veiny and downy. Corolla longish and ovate. Branches angular. (*Don's Mill.*) An erect deciduous shrub. Pennsylvania to Virginia, in dry woods, and common on the mountains. Height 2 ft. to 3 ft. Introduced in 1812. Flowers purplish red; May to July. Berries black; ripe in October.

c. *Flowers disposed in Racemes.*

8. *V.* PA'LLIDUM *Ait.* The pale-*flowered* Whortleberry.

*Identification.* Ait. Hort. Kew., ed. 2., vol. 2. p. 355.; Don's Mill., 3. p. 853.
*Engraving.* Our *fig.* 1161. from a specimen in the British Museum.

*Spec. Char., &c.* Racemes bracteate. Corolla cylindrically bell-shaped. Leaves ovate, acute, finely serrated. (*Don's Mill.*) A low deciduous shrub. North America. Height 2 ft. Introduced in 1772. Flowers whitish; May and June.

1161. *V.* pallidum.

♃ 9. *V.* ARBO'REUM *Marsh.* The Tree-like Whortleberry.

*Identification.* Marsh. in Michx. Fl. Bor. Amer., 1. p. 230.; Don's Mill., 3. p. 853.
*Synonyme.* *V.* diffusum *Ait. Hort. Kew.* ed. 2. vol. 2. p. 356.
*Engravings.* Bot. Cab., t. 1885.; and our *fig.* 1162.

*Spec. Char., &c.* Pedicels axillary and solitary, or terminal and racemose, naked. Leaves ovate, acute, with slight glandular serratures; polished above, and rather downy beneath. Corollas bell-shaped, acute. Stamens the length of the tube. Berries globular, almost dry. Branches terete, downy while young. (*Don's Mill.*) An elegant deciduous shrub, with the habit of a tree. North Carolina to Florida, in dry woods, on the rocky banks of rivers. Height 10 ft. to 20 ft. Introduced in 1765. Flowers white, tinged with red; June and July. Berries black; ripe in November.

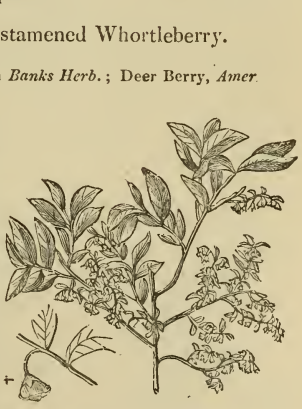
1162. *V.* arboreum.

This species joins the solitary-flowered species with the racemose-flowered species; the axillary flowers being solitary and pedicellate, and the terminal ones racemose. In British gardens, it flowers and fruits freely in peat soil.

♃ 10. *V.* STAMI'NEUM *L.* The *long*-stamened Whortleberry.

*Identification.* Lin. Sp., 498.; Don's Mill., 3. p. 853.
*Synonymes.* *V.* album *Pursh Sept.* 1. p. 285.; *V.* elevatum *Banks Herb.*; Deer Berry, *Amer.*
*Engravings.* Andr. Bot. Rep., t. 263.; and our *fig.* 1163.

*Spec. Char., &c.* Racemes downy, with oval bracteas as long as the flowers. Anthers 2-horned on the back, twice as long as the spreading bell-shaped corolla. Leaves elliptic, acute, entire, glaucous, and rather downy beneath. Stem 2 ft. high, with numerous green branches, which are downy while young. Leaves $1\frac{1}{2}$ or 2 inches long, on very short downy stalks. Flowers decandrous, copious, white, having linear anthers, which are horned near the base. The bracteas resemble the leaves, but are much smaller. (*Don's Mill.*) A low deciduous shrub. New England to Florida. Height 1 ft. to 2 ft. Introduced in 1772. Flowers white; May and June. Berries greenish or white; ripe in October.



1163. *V.* stamineum.

*Variety.*

♃ V. *s.* 2 *album* H. B. et Kunth Nov. Gen. Amer. iii. p. 267.—The leaves are larger, and ciliated on the nerves beneath, and on the margins. Corolla campanulate and white. It is a native of Mexico, in woods, between Pachuca and Real del Monte, where it seldom grows above 6 in. high.

♃ 11. *V.* DUMO'SUM *Ait.* The bushy Whortleberry.

*Identification.* Ait. Hort. Kew., ed. 2., vol. 2. p. 356.; Don's Mill., 3. p. 853.
*Synonymes.* *V.* frondosum *Michx. Fl. Bor. Amer.* 1. p. 230.; *V.* hirtellum *Ait. Hort. Kew.* ed. 2. vol. 2. p. 357.
*Engravings.* Bot. Mag., t. 1106.; Bot. Rep., t. 112.; and our *fig.* 1164.

*Spec. Char., &c.* Racemes downy, with oval bracteas, and the pedicels with

2 lanceolate bracteoles. Leaves obovate, mucronate, entire, downy, and viscid. Ovarium hairy. Corolla bell-shaped, obtuse, longer than the stamens. Branches round. Leaves 1½ in. long. Calycine segments fringed. (*Don's Mill.*) A low bushy deciduous shrub. New Jersey to Florida, in dry sandy woods, particularly in pine forests. Height 2 ft. to 3 ft. Introduced in 1774. Flowers white, tinged with pink, rather large; June and July. Berries black, globular; ripe in November.

1161. *V.* dumòsum.

*Variety.*

V. *d.* 2 *hùmile* Wats. Dend. Brit. t. 32. — The flowers are white; anthers red; pedicels solitary, axillary. Shrub, 6 in. high.

12. *V.* CORYMBO'SUM *L.* The corymbose-*flowered* Whortleberry.

*Identification.* Lin. Sp., 499.; Don's Mill., 3. p. 853.; Hook. in Bot. Mag., t. 3433.
*Synonymes.* *V.* amœ'num *Ait. Hort. Kew.* ed. 2. vol. 2. p. 358.; *V.* disomórphum *Michx. Fl. Bor. Amer.* 1. p. 231.; *V.* elevàtum *Hort.*; *V.* álbum *Lam. Dict.* 1. p. 13.
*Engravings.* Dend. Brit., t. 123.; Bot. Rep., t. 138.; Bot. Mag., t. 3433.; and our *figs.* 1165. and 1166.

*Spec. Char., &c.* Flowering branches almost leafless. Racemes corymbose, drooping, with membranous bracteas, which are shorter than the downy flower stalks. Leaves elliptic, acute, minutely serrated, smooth, with downy ribs. (*Don's Mill.*) Leaves 1½ in. to 2 in. long, tipped with a glandular point. Racemes rising from the branches of the preceding year, and seldom accompanied by leaves. Bracteas reddish, membranous, and fringed. Calycine segments broad and shallow. Corollas white or reddish, cylindrically urceolate, rather angular, and contracted at the mouth. Stamens 10, downy. Anthers enclosed, having a double pouch at the base, but no spurs. This species has a number of varieties, in size, shape, and colour of the leaves, flowers, and fruit. A tall deciduous shrub. Canada to Carolina and Georgia, in swamps and wet woods. Height 4 ft. to 7 ft. Introduced in 1765. Flowers white or reddish; May and June. Berries black, insipid, used in tarts like those of the cranberry; ripe in October.

1165 *V.* corymbòsum.

1166. *V.* corymbòsum

1167. *V. c.* virgàtum.

*Varieties.*

V. *c.* 2 *virgàtum* Ait. Hort. Kew. ed. 2. vol. 2. p. 358., Don's Mill. 3. p. 854.; and our *fig.* 976. — The flowers are white, tinged with crimson or pale red; very elegant, and smaller than the species. Racemes short, lateral, and terminal. Virginia and Carolina, in swamps; where it grows 2 ft. high.

V. *c.* 3 *fuscàtum* Ait. Hort. Kew. l. c. *V.* formòsum *Andr. Bot. Rep* t. 97.; *V.* virgàtum *Wats. Dend. Brit.* t. 33., but not of Ait.; and our

*fig.* 1168. — The flowers striped with red and white, and the calyx downy. Lower Carolina and Georgia, in swamps.

V. *c.* 4 *angustifòlium*, *V.* virgàtum var. angustifòlium *Wats. Dend. Brit.* t. 34. — The leaves narrow, lanceolate, and acuminated at both ends, sessile, besprinkled with brown, minute, pedicellate glands beneath, and hairy on the midrib above. Flowers almost white. This variety, like the preceding ones of *V.* corymbòsum, is very handsome, and very distinct; and, in British gardens, of easy culture, in sandy peat soil, which, however, as in all similar cases, must be kept cool, and of an equable degree of moisture.

1168. *V.* c. fuscàtum.

13. *V.* ALBIFLO'RUM *Hook.* The white-flowered Whortleberry.

*Identification.* Hook. in Bot. Mag., 3428.; Gard. Mag., vol. 11. p. 475.
*Synonyme.* *V.* álbum *Lam.* ?
*Engravings.* Bot. Mag., t. 3428.; and our *fig.* 1169.

*Spec. Char., &c.* Leaves oval-lanceolate, obscurely serrulate, membranous, pilose beneath, with spreading hairs, especially on the midrib and primary veins. Flower-bearing branches leafless. Racemes a little corymbose, directed to one side, drooping, bracteated with shortly deciduous bracteas. Calyx spreading, with a tendency to be reflexed. Corolla broadly oval. Ovary wholly inferior. (*Hooker.*) A small deciduous shrub, with spreading branches. North America. Height 1 ft. to 2 ft. Introduced ? 1820. Flowers white; May.

1169. *V.* albiflòrum.

The affinity of this very pretty species is undoubtedly with *V.* corymbòsum, but the half-superior ovary of *V.* corymbòsum, and the wholly inferior one of *V.* albiflòrum, and other points of difference implied in those noticed in the specific character above, have induced Sir W. J. Hooker to think that the two are permanently distinct. In the Botanic Garden, Glasgow, it fruits abundantly every year, and the fruit is very good to eat.

1170. *V.* mariànum.

14. *V.* MARIA'NUM *Wats.* The Maryland Whortleberry.

*Identification.* Wats. Dend. Brit., t. 124.; Don's Mill., 3 p. 854.
*Synonyme.* *V.* marilándicum *Lodd. Cat.* ed. 1836.
*Engravings.* Dend. Brit., t. 124.; and our *fig.* 1170.

*Spec. Char., &c.* Racemes lateral, numerous, many-flowered. Corolla cylindrical, contracted at the mouth. Leaves elliptic, coriaceous, glabrous, distinctly and minutely denticulated. Flowers decandrous. (*Don's Mill.*) A low deciduous shrub. North America. Height 3 ft. to 4 ft. Introd. 1812. Flowers white; May and June.

1171. *V.* grandiflòrum.

15. *V.* GRANDIFLO'RUM *Wats.* The great-flowered Whortleberry.

*Identification.* Wats. Dend. Brit., t. 125. f. A.; Don's Mill., 3. p. 854

*Engravings.* Dend. Brit., t. 125. A.; and our *fig.* 1171. from a plant at Messrs. Loddiges, and *fig.* 1172. from Watson.

*Spec. Char., &c.* Racemes terminal, 3—4-flowered. Corollas cylindrical, contracted at the mouth. Leaves lanceolate, finely serrated, attenuated at both ends, glabrous. Flowers decandrous. (*Don's Mill.*) A low deciduous shrub. North America. Height 1½ ft. Introduced in 1812. Flowers white; July and August. Berries purple; ripe in November.

1172. *V.* grandiflòrum.

16. *V.* (G.) ELONGA'TUM *Wats.* The elongated Whortleberry.

*Identification.* Wats. Dend. Brit., t. 125. B.; Don's Mill., 3. p. 854.
*Engravings.* Dend. Brit., t. 125. B.; and our *fig.* 1173.

*Spec. Char., &c.* Corymbs few-flowered, bractless. Pedicels downy. Leaves elliptic-lanceolate, serrulated, each tipped by a glandular hair, and having a few hairs on the nerves. Branchlets downy. Corollas with reflexed teeth. (*Don's Mill.*) A low deciduous shrub. North America. Height 3 ft. to 4 ft. Introduced in 1812. Flowers white; July and August. Berries purple; ripe in November.

1173. *V.* (g.) elongàtum.

17. *V.* (G.) MINUTIFLO'RUM *Wats.* The minute-flowered Whortleberry.

*Identification.* Wats. Dend. Brit., t. 125. C.; Don's Mill., 3. p. 854.
*Engravings.* Dend. Brit., t. 125. C.; and our *fig.* 1174.

*Spec. Char., &c.* Racemes terminal, few-flowered. Corollas cylindrical, with erect teeth. Leaves rather coriaceous, bluntly subserrated, each tipped by a gland. (*Don's Mill.*) A low deciduous shrub. North America. Height 1 ft. Introduced in 1812. Flowers white; July and August. Berries purple; ripe in November.

1174. *V.* (g.) minutiflòrum.

18. *V.* GLA'BRUM *Wats.* The glabrous Whortleberry.

*Identification.* Wats. Dend. Brit., t. 125. D.; Don's Mill., 3. p. 854.
*Engravings.* Dend. Brit., t. 125. D.; and our *fig.* 1175.

*Spec. Char., &c.* Spikes lateral. Corollas campanulately cylindrical. Leaves elliptic, entire, glabrous. (*Don's Mill.*) A delicate, beautiful, and perfectly smooth deciduous plant North America. Height 1 ft. Introduced in 1812. Flowers rose-coloured; July and August. Berries purple; ripe in November.

1175. *V.* glàbrum.

19. *V.* FRONDO'SUM *L.* The frondose Whortleberry.

*Identification.* Lin. Sp., 499.; Don's Mill., 3. p. 854.; Lodd. Cat., ed. 1836.
*Synonymes.* *V.* glaucum *Michx. Fl. Bor. Amer.* 1. p. 231.; Blue Tangles, *Amer.*
*Engravings* Andr. Bot. Rep., t. 140.; and our *fig.* 1176.

*Spec. Char., &c* Racemes loose. Bracteas obovate, not half so long as the slender pedicels, which bear 2 small linear bracteoles in the middle. Leaves obovate-oblong, obtuse, entire, smooth. Flowers small, almost globular, and white. Branchlets frondose (that is, abounding in leaves), terete, smooth, and slender. Leaves 2 in. to 3 in. long, glaucous beneath, and sprinkled with minute resinous dots. Racemes lateral, from the former year's wood. Flowers drooping, greenish white, and shaped like those of the lily of the valley, but smaller. Anthers not prominent. (*Don's Mill.*) A low deciduous shrub. New Jersey to Carolina, in woods. Height 3 ft. Introduced in 1761. Flowers white; May and June. Berries blue, globular, eatable; ripe in October.

1176. *V.* frondòsum.

*Variety.*

V. *f.* 2 *venústum* Ait. Hort. Kew. ed. 2 vol. ii. p. 357. *V.* frondòsum var. β lanceolàtum *Pursh Fl. Amer. Sept.* i. p. 786. — The leaves are lanceolate, and acute at both ends.

20. *V.* RESINO'SUM *Ait.* The resinous Whortleberry.

*Identification.* Ait. Hort. Kew., ed. 2., vol. 2. p. 357.; Don's Mill., 3. p. 854.
*Synonyme.* Andrómeda baccàta *Wangh. Amer.* t. 30. f. 69.
*Engravings.* Bot. Mag., t. 1288.; and our *fig.* 1177.

*Spec. Char., &c.* Racemes leafless, viscid, downy, with lanceolate bracteoles on the pedicels. Leaves obovate-lanceolate, bluntish, entire, covered with resinous dots. Calyx in 5 deep ovate segments, longer than the ovarium. Branches round, and downy when young. Leaves usually 1½ in. long, bright green on both sides, and rather viscid. Racemes lateral, upon last year's wood, and drooping. (*Don's Mill.*) A low deciduous shrub. Canada to Carolina, in woods and on mountains. Height 2 ft. Introduced in 1782. Flowers greenish yellow; May and June. Berries black, eatable; ripe in October.

1177. *V.* resinòsum.

1178. *V.* r. lutéscens.

*Varieties.*

V. *r.* 2 *rubéscens* Pursh Fl. Amer. Sept. i. p. 286., Curt. Bot. Mag. t. 1288. — Corollas reddish.

V. *r.* 3 *lutéscens* Pursh l. c. *V.* parviflòrum *Andr. Bot. Rep.* t. 125. (our *fig.* 1178.) — Leaves lanceolate, and the flowers reddish yellow.

21. *V.* ARCTOSTA'PHYLOS *L.* The Bear's-Grape Whortleberry.

*Identification.* Lin. Sp., 500.; Don's Mill., 3. p. 854.
*Engraving.* Our *fig.* 1179. from the plant in the Horticultural Society's Garden.

*Spec. Char., &c.* Racemes lateral. Bracteas all at the base of the pedicels. Leaves elliptic, acute, minutely serrated, hairy beneath. Stamens as long as the corolla, which is bell-shaped, with very hairy filaments. Calyx slightly 5-lobed. Young branches downy on both sides. Leaves 2½ in. long. Racemes from the wood of the preceding year, below the fresh leafy shoots, drooping, rather hairy; each composed of 8—10 pendulous flowers, of a dirty white colour, tinged with purple. Anthers spurred at the base. Corollas bell-shaped, hairy. (*Don's Mill.*) A large deciduous shrub. Coast of the Black Sea. Height 8 ft. to 10 ft. Introduced in 1800. Flowers white, tinged with purple; May and June. Berries purple; ripe in October.

Commonly grown only as an ornamental shrub, yet it might be cultivated for its fruit, which is produced in very great abundance, is agreeable to the taste, and makes excellent tarts. All the garden culture required is, to place the plants in sandy peat, or in peat and leaf mould, kept moist. There seems to be a good deal of confusion, in British gardens, between this species and the following one.

1179. *V.* Arctostâphylos.

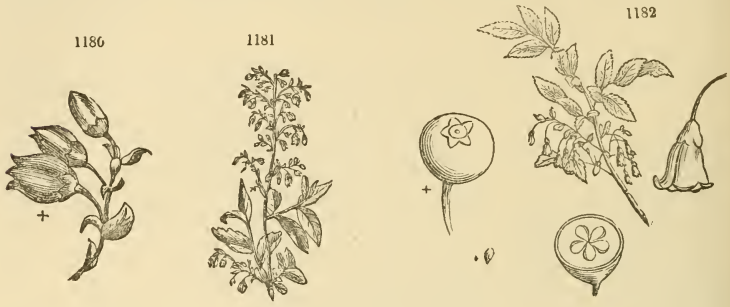
22. *V.* (? *A.*) PADIFO'LIUM *Smith.* The Bird-Cherry-leaved Bear's-Grape Whortleberry.

*Identification.* Smith in Rees's Cycl., No. 22.; Don's Mill., 3. p. 854.

*Synonymes.* *V. Arctostáphylos* *Andr. Bot. Rep.* t. 30.; *V.* maderénse *Link Enum.* p. 375.; *V.* caucásicum *Hort.*; *V.* padifòlium caucásicum *Hort. Soc. Cat. of Fruit* edit. 1826 p. 203.
*Engravings.* Bot. Rep., t 30.; Bot. Mag., t. 974.; and our *figs.* 1180. and 1181., and *fig.* 1182. from a specimen in the Hammersmith Nursery.

*Spec. Char., &c.* Racemes lateral. Bracteas all at the base of the pedicels Leaves ovate-lanceolate, acute, serrulated, smooth on both surfaces, except the midrib. Stamens nearly as long as the bell-shaped corolla, with smooth slightly fringed filaments. Calyx 5-lobed. Corollas larger than those of

1180 1181 1182



1180, 1181, 1182. *V.* (? *A*) padifòlium.

*V. Arctostáphylos*, pale green, with a purple tinge: sometimes it appears to be all over purple externally. (*Don's Mill.*) A large deciduous shrub. Caucasus, and Madeira on the loftiest parts of the island. Height 6 ft. to 10 ft. Introduced in 1811. Flowers pale green, tinged with purple; June to August. Berries black, juicy, eatable, and agreeably acid; ripe in October.

B. *Leaves evergreen.*

a. *Flowers racemose.*

♃ 23. *V.* CARACASA'NUM *H. B. et Kunth.* The Caraccas Whortleberry.

*Identification.* H. B. et Kunth Mov. Gen. Amer., 3. p. 266.; Don's Mill., 3. p. 855.
*Engraving.* Our *fig.* 1183. from a specimen in the Museum of the Jardin des Plantes.

*Spec. Char., &c.* Racemes axillary, twice as long as the leaves. Flowers secund, octandrous or decandrous. Leaves elliptic, acute, crenulated, coriaceous, glabrous, shining above. Anthers 2-horned on the back. Branchlets angular, glabrous. Leaves shining above, 9—10 lines long. Racemes crowded at the tops of the branches. Corolla campanulate, glabrous, reddish white, with a 4—5-parted limb. Segments ovate, acutish. Filaments membranous, ciliated. (*Don's Mill.*) A low evergreen shrub. Southern declivity of Mount Silla de Caraccas. Height 2 ft. to 3 ft. Introduced in 1825. Flowers reddish white; May and June. Berries ?.

1183. *V.* caracasànum.

♃ 24. *V.* VI'TIS IDÆ'A *L.* The Mount Ida Whortleberry, *or Cowberry.*

*Identification.* Lin. Sp., 500.; Eng. Fl., 2. p. 220.; Don's Mill., 3. p. 855.
*Synonymes.* *Vitis idæ'a rùbra* *Cam. Epit.* 136.; the red Whortleberry.
*Engravings.* Bot. Cab., t. 1023.; Eng. Bot., t. 598.; Fl. Dan., t. 40.; and our *fig.* 1184.

*Spec. Char., &c.* Racemes terminal, drooping, with ovate concave bracteas, which are longer than the pedicels. Leaves obovate, revolute, minutely toothed, dotted beneath. Corolla bell-shaped. Root creeping, woody. Stems ascending, a span high. Young branches terete, downy. Leaves like those of box, but darker. Flowers pale pink, 4-cleft, octandrous. Anthers without spurs. Berries blood-red, acid, austere, and bitter; less palatable than either the cranberry or bilberry. (*Don's Mill.*) A diminutive creeping evergreen shrub. Europe, Siberia, and North America, in many

places, more especially in barren woods and heaths. Height 6 in.; in sheltered places, 1 ft. Flowers pale pink; May and June. Berries blood red; ripe from August to October.

The berries are scarcely to be eaten raw: but they are made into pies in Derbyshire; and, in Sweden, a rob, or jelly, is made from them, which is eaten with all kinds of roast meat. In Sweden, this preserve is also considered an excellent medicine in colds, sore throats, and all irritations of the mouth or fauces. In Siberia, the berries are macerated, during the autumn and part of the winter, in water; and afterwards they are eaten in a raw state, and fermented along with barley or rye, and a spirit distilled from them; or with honey, and a wine produced. Sweetmeats are also made of them with honey or sugar, which, in 1814, we found in frequent use in Moscow, at balls and masquerades. In Sweden and Norway, the plant is said to be used in gardens for edgings, as box is in Central Europe; and, in British gardens, it is sometimes so applied to American beds and borders, and in other cases where the soil is peat. From its smooth shining foliage, and the beauty of its flowers and fruit, the latter being retained on the plant for several months, it forms a more beautiful and varied edging than box, provided clipping can be dispensed with.

1184. *V. Vitis idæ'a.*

♃ 25. *V.* (*V.*) BUXIFO'LIUM *Salisb.* The Box-leaved Whortleberry.

*Identification.* Salisb. Par., t. 4.; Don's Mill., 3. p. 856.
*Synonyme.* *V.* brachycerum *Michx. Fl. Bor. Amer.* 1. p. 234.
*Engravings.* Bot. Mag., t. 928.; Bot. Cab., t. 648.; and our *figs.* 1185. and 1186.

*Spec. Char., &c.* Racemes axillary, of few flowers. Leaves petiolate, obovate, toothed or crenated, smooth on both surfaces. Stems tufted. Corollas roundish-ovate. Filaments glandular. Stigma capitate. Flowers white, delicately striped with red. (*Don's Mill.*) The leaves are, however, smooth, even, and not dotted on the under side. Corollas globular, contracted at the mouth, not bell-shaped. Stamens 10. Anthers spurless at the base, discharging their pollen by lateral, not by terminal, apertures. A handsome little evergreen shrub, in stature and general aspect resembling *Vacc. Vitis idæ'a.* Western parts of Virginia, near Winchester and the Sweet Springs. Height 6 in. Introd. 1794. Flowers white, delicately striped with red; June. Berries red; ripe in October.

1185. *V.* (*V.*) *buxifolium.*

1186. *V.* (*V.*) *buxifolium.*

♃ 26. *V.* (? *V.*) MYRTIFO'LIUM *Michx.* The Myrtle-leaved Whortleberry.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 229.; Don's Mill., 3. p. 856.
*Engraving.* Our *fig.* 1187. from a specimen in the Museum of the Jardin des Plantes.

*Spec. Char., &c.* Creeping, quite smooth. Leaves petiolate, oval, shining, revolute, sparingly and minutely toothed. Racemes axillary, nearly sessile, of few flowers. Corolla bell-shaped, somewhat inflated, minutely 5-toothed. Anthers without dorsal horns. (*Don's Mill.*)

1187 *V.* (*V.*) *myrtifolium.*

Michaux describes the berries as small, globose, crowned by the calyx, black, on short stalks. A low, creeping, evergreen shrub. Carolina. Height 6 in. Introduced in 1812. Flowers pink; May to July. Berries black; ripe in October.

27. *V.* NI'TIDUM *Andr.* The glossy-*leaved* Whortleberry.

*Identification.* Andr. Bot. Rep., t. 480.; Pursh Fl. Amer. Sept., 1. p. 289.; Don's Mill., 3. p. 856.
*Engravings.* Curt. Bot. Mag., t. 1550.; and our *fig.* 1188.

*Spec. Char., &c.* Racemes terminal, corymbose. Bracteas shorter than the pedicels. Leaves elliptic-obovate, acute, crenated, smooth, and shining. Corollas cylindrical. Stems either erect or diffuse. Leaves ½ in. to 1 in. long, paler and veiny beneath. Pedicels, bracteas, and calyx, very smooth, of a shining red or purple colour. Calyx of 5 broad, but rather shallow, segments. Corollas ovate, oblong, white or pink, with 5 slightly spreading teeth, decandrous. The branches are downy on two opposite sides. (*Don's Mill.*) A decumbent evergreen shrub. Carolina. Height 1 ft. Introduced in 1794. Flowers white or pink; May and June. Berries ?.

1188. *V.* nitidum.

28. *V.* CRASSIFO'LIUM *Andr.* The thick-leaved Whortleberry.

*Identification.* Andr. Bot. Rep., t. 105.; Pursh Fl. Amer. Sept., 1. p. 289.; Don's Mill., 3. p. 856.
*Engravings.* Bot. Rep., t. 105.; Curt. Bot. Mag., t. 1152.; and our *fig.* 1189.

*Spec. Char., &c.* Racemes lateral and terminal, corymbose. Bracteas shorter than the pedicels. Leaves elliptic, crenated, smooth, paler and veiny beneath. Corolla bell-shaped. Stem diffuse. A hairy shrub, requiring some shelter from our variable winters and springs. Leaves not an inch long, with a little minute pubescence on the midrib and petioles. Flowers 5-cleft, decandrous, prettily variegated with pink and white, drooping, on red corymbose stalks. Stamens hairy. (*Don's Mill.*) A trailing evergreen shrub. Carolina. Height 6 in. Introduced in 1787. Flowers pink and white; May and June. Berries ?.

1189. *V.* crassifolium.

29. *V.* OVA'TUM *Pursh.* The ovate-*leaved* Whortleberry.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 290.; Hook. et Arn. in Beech. Voy., Pt. Bot., p. 114.; Don's Mill., 3. p. 856.; Lodd. Cat., ed. 1836.
*Engravings.* Bot. Reg. 1354.; our *fig.* 1190. from a living specimen, and *fig.* 1191. from Bot. Reg.

*Spec. Char., &c.* Racemes axillary and terminal, bracteate, short. Leaves on short petioles, oblong, ovate, acute, revolute, serrated, smooth, coriaceous. Corolla cylindrical, campanulate. Calyxes acute. Shrub much branched. Branches hairy, as well as the petioles. (*Don's Mill.*) A beautiful evergreen shrub. Banks of the Columbia River, and on the north-west coast of America. Height 2 ft. to 3 ft. Introduced in 1826. Flowers pink; May. Berries black, size of a pea.

1190. *V.* ovatum.

1191. *V.* ovatum

30. *V.* CANADE'NSE *Richards.* The Canada Whortleberry.

*Identification.* Richards in Franklin 1st Journ., Append.; Don's Mill., 3. p. 856.
*Engravings.* Bot. Mag., t. 3446.; and our *fig.* 1192.

*Spec. Char., &c.* Leaves lanceolate, acute at both ends, quite entire, downy. Racemes terminal. Flowers in racemes of from 4 to 6 in each. Style enclosed. Corolla short, and campanulate, white, tinged with red. Stem much branched. Leaves often 1 in. long. Berries blue black, agreeable to the taste. It may be readily known from *V.* corymbòsum by its dwarf size, leafy flowering branches, and campanulate corolla; from *V.* pennsylvánicum by its large quite entire leaves, and wider mouth to the corolla; and from both by its leaves being very hairy. A low, branchy, evergreen shrub. Canada. Height 6 in. to 1 ft. Introduced in 1834. Flowers white, tinged with red; May. Berries ?.

1192. *V.* canadénse.

b. *Flowers disposed in scaly Tufts, nearly sessile.*

31. *V.* MYRSINI'TES *Michx.* The Myrsine-like Whortleberry.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 233.; Pursh Sept., 1. p. 290.; Don's Mill., 3. p. 856.
*Engraving.* Our *fig.* 1193. from a specimen in Sir W. Hooker's herbarium

*Spec. Char., &c.* Flowers in terminal and lateral tufts. Leaves sessile, oval, mucronate, obscurely serrated, smooth and shining above, and rather hairy and dotted beneath. Stem erect, much branched. Corolla oblong-ovate. (*Don's Mill.*) Slightly downy branches. Leaves glandular beneath. Tufts of flowers axillary, with purple scales. Calycine segments scarlet. Stamens 10. A beautiful little evergreen shrub. Carolina and Florida, in dry sandy woods. Height 6 in. to 1 ft. Introduced ?. Flowers purple; May and June. Berries ?.

1193. *V.* Myrsinites.

*Varieties.*

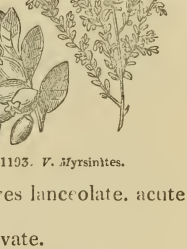
V. M. 2 *lanceolàtus* Pursh Sept. 1. p. 290.—Leaves lanceolate, acute at both ends.

V. M. 3 *obtùsus* Pursh l. c.—Leaves roundish-obovate.

32. *V.* HUMIFU'SUM *Grah.* The trailing Whortleberry.

*Identification.* Graham in Edinb. Phil. Journ. June, 1831; Don's Mill., 3. p. 857.
*Engraving.* Our *fig.* 1194. from a living specimen.

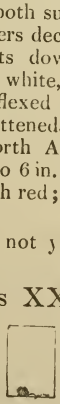
*Spec. Char., &c.* Pedicels axillary, solitary, 1-flowered, furnished with many bracteas. Leaves evergreen, ovate, acutish, quite entire, glabrous on both surfaces, ciliated. Stem prostrate, creeping. Flowers decandrous. Anthers obtuse, mutic. Branchlets downy. Flowers drooping. Corollas campanulate, white, often partially tinged with red outside, with reflexed teeth. Stigma capitate. Filaments glabrous, flattened. (*Don's Mill.*) A creeping evergreen shrub. North America, on the Rocky Mountains. Height 3 in. to 6 in. Introduced in 1827. Flowers white, tinged with red; May. Berry ? purple, edible, well flavoured; ripe in October.



1194. *V.* humifùsum.

Of hardy species of *Vaccínium* not yet introduced seven are described in our first edition.

## GENUS XXVIII.



OXYCO'CCUS *Pers.* THE CRANBERRY. *Lin. Syst.* Octándria Monogýnia.
*Identification.* Pers. Syn., 1. p. 419.; Pursh Sept., 1. p. 263.; Don's Mill., 3. p. 857.

*Synonyme.* Vaccínium sp. of Lin. and others.
*Derivation.* From *oxus*, sharp, and *kokkos*, a berry; in reference to the sharp acid taste of the berries.

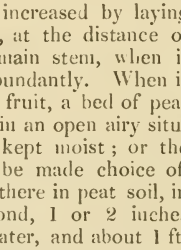
*Gen. Char.* *Calyx* 4-toothed. *Corolla* 4-parted, with nearly linear revolute segments. *Stamens* 8, with connivent filaments. *Anthers* tubular, 2-parted. *Berries* many-seeded. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, sub-evergreen; small. *Flowers* produced at the base of the spring branchlets, in short gemmaceous racemes; pedicels filiform, conspicuously bibracteate. *Berries* red, rarely white, acid.—Shrubs, small, prostrate, creeping, growing in sphagnous morasses. Natives of Europe and North America.

1. O. PALU'STRIS *Pers.* The Marsh, *or common*, Cranberry.

*Identification.* Pers. Ench., 1. p. 419.; Don's Mill., 3 p. 858.
*Synonymes.* O. vulgàris *Pursh Sept.* 1. p. 263., O. europæ'us *Nutt. Gen. Amer.* 1. p. 251.; *Vaccínium Oxycóccus Lin. Sp.* 500.; *Vaccínium Oxycóccus* var. α ovalifolius *Michx. Fl. Bor. Amer.* 1. p. 228.; *Vaccínia palústris Ger. Emac.* 1419.; Oxycóccum *Cord. Hist.* 140. 2. f. 1.; Mossberries, Moorberries, Fenberries, Marshworts, or Whortleberries, Cornberries, *Eng.*; Airelle canneberge, *Fr.*; gemeine Moosebeere, *Ger.*
*Derivation.* The name of Cranberry is supposed to be given from the peduncles of the flowers being crooked at the top, and, before the expansion of the flowers, resembling the head and neck of a crane (*Smith* and *Withering*); or because they are much eaten by cranes.
*Engravings.* Fl. Dan., t. 80.; Eng. Bot., t. 319.; and our *fig.* 1195.

*Spec. Char., &c.* Stems filiform, trailing. Leaves small, ovate, entire, acute, smooth, with revolute margins. Pedicels terminal, 1-flowered, of a delicate pink or rose colour. Segments of corolla oval. Leaves convex, and dark shining green above, and glaucous beneath. Stems reddish. Pedicels few together, about the tops of the branches, red, slightly hoary. Corolla pink, with reflexed oblong segments. Stamens with purple downy filaments, and yellow anthers. Berries pear-shaped, globular, often spotted, crimson, of a peculiar flavour, with a strong acidity, grateful. (*Don's Mill.*) A low, trailing, sub-evergreen shrub. Europe, Siberia, and North America, in turfy mossy bogs on the mountains. Height 3 in. to 6 in. Flowers pink; May and June. Fruit crimson; September, remaining on during the winter.


1195. O. palustris.

The plant is readily increased by laying sandy soil on its shoots, at the distance of 5 or 6 inches from its main stem, when it will send down roots abundantly. When it is to be grown for its fruit, a bed of peat soil should be prepared in an open airy situation, where it can be kept moist; or the margin of a pond may be made choice of, and the plants planted there in peat soil, in a bed encircling the pond, 1 or 2 inches above the level of the water, and about 1 ft. distant from it. The cranberry may also be grown in beds of dry sandy peat; and it is alleged by some who have tried this method in British gardens, that the fruit produced, though smaller in quantity, is of a better flavour

2. O. MACROCA'RPUS *Pursh.* The large-fruited, *or American*, Cranberry.

*Identification.* Pursh Fl. Amer. Sept., 1. p 263.; Don's Mill., 3. p. 858.
*Synonymes.* *Vaccínium* macrocárpum *Ait. Hort. Kew.* ed. 1. vol. 2. p. 13. t. 7.; *Vaccínium* hispidulum *Wangh. Amer.* t. 30. f. 67.; *Vaccínium* Oxycóccus β oblongifólius *Michx. Fl. Bor. Amer.* 1. p. 228.
*Engravings.* Dend. Brit., t 122.; Bot. Mag., t. 2586.; our *fig.* 1196., and our *fig.* 1197. from Bot. Mag.

*Spec. Char., &c.* Stems filiform, trailing. Leaves elliptic-oblong, nearly flat, and obtuse, distantly sub-serrulated on the margins, glaucous beneath, downy at the points when young. Segments of the corolla linear-lanceolate. Flower-bearing branches erect, proliferous. Pedicels lateral. Points of young leaves, peduncles, and the margins of the calyx and bracteas, downy. Berries spherical, red, often remaining throughout the winter. (*Don's Mill.*)

1196. O. macrocárpus.

A trailing shrub, resembling the preceding species, but larger and more robust. Canada to Virginia, in bogs, principally on a sandy soil; and also frequently found on high mountains. Height 6 in. Introduced in 1760. Flowers pink; May to July. Berries spherical, red or purple; ripe in October, and remaining on throughout the winter.

1197. O. macrocárpus.

*Variety.*

♀ *O. m.* 2 *fóliis variegàtis* Hort., *V*accínium macrocárpum fól. var. *Lodd. Cat.*, has variegated leaves, and is a very ornamental plant for keeping in pots, or on moist rockwork.

The fruit is used like that of the common cranberry; and like that species the plant may be propagated by cuttings taken from the points of the growing shoots, and planted in sand under a hand-glass; or by layers, or division. This species is more frequently cultivated in British gardens for its fruit than the European cranberry; according to some, because the fruit is larger, and according to others, because the fruit is not only larger, but better flavoured.

♂ ♀ 3. O. ERE'CTUS *Pursh.* The erect Cranberry.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 264.; Don's Mill., 3. p. 858.
*Synonyme.* *V*accínium erythrocárpum *Michx. Fl. Bor. Amer.* 1. p. 227.
*Engravings.* Dend. Brit., t. 13.; and our *fig.* 1198.

*Spec. Char., &c.* Leaves oval, acuminated, serrulated, and ciliated. Pedicels axillary. Corolla, before expansion, long and conical, at length revolute. Stem erect. Branches flexuous. Leaves membranous, somewhat hairy. Flowers red. Berries scarlet (Watson says black), quite transparent, and of an exquisite taste. Very different in habit from the other species. (*Don's Mill.*) An erect sub-evergreen shrub. Virginia and Carolina, on lofty mountains. Height 2 ft. Introduced in 1806. Flowers red; May and June. Berries scarlet or purple; ripe in October.

1198. O. eréctus.

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## ORDER XLIV. STYRA'CEÆ.

ORD. CHAR. *Calyx* 5-toothed. *Corolla* funnel-shaped, usually 5—6-cleft; aestivation valvate. *Stamens* 10, monadelphous at the base, adnate to the corolla. *Ovarium* superior, 3-celled. *Stigma* 2-lobed. *Drupe* nearly dry, containing a 1-celled 1—3-seeded nut. *Albumen* fleshy. The superior ovarium, and more deeply divided corolla, separate this from Hales*iàceæ*. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; usually toothed, turning yellow when dry. *Flowers* axillary, either solitary or clustered, with scale-like bracts, white or cream-coloured.—Trees or shrubs, usually clothed with stellate tomentum; natives of Asia and North America.

## GENUS I.

### STY'RAX *L.* THE STORAX. *Lin. Syst.* Decándria Monogýnia.

*Identification.* Lin. Gen., No. 595.; Tourn., t. 369.; Juss. Gen., 156.; Gærtn. Fruct., 1. p. 284 t. 59.; Lindl. Nat. Syst. Bot., 2d edit., p. 228.; Don's Mill., 4. p. 4.
*Synonymes.* Albocifier, *Fr.*; Storax, *Ger.*
*Derivation.* The word *sturax*, applied to this plant by Theophrastus and Dioscorides, is a mere alteration of *assthirak*, the Arabic name of *S.* officinàle.

*Gen. Char., &c.* *Calyx* permanent, campanulate, 5-toothed. *Corolla* monopetalous, funnel-shaped, deeply 3—7-cleft, but usually 5- or 6-cleft, valvate in æstivation. *Stamens* 10, exserted; filaments monadelphous at the base, adnate to the tube of the corolla. *Anthers* linear, 2-celled, dehiscing lengthwise inwardly. *Ovarium* superior, 3-celled, many-ovuled, erect. *Style* 1. *Stigma* obsoletely 3-lobed. *Drupe* nearly dry, containing a 1-celled, 1—3-seeded nut. *Testa* of seed double; inner cobwebbed, outer spongy. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous; entire or serrated. *Flowers* racemose, bracteate, white or cream-coloured.—Low trees or shrubs; natives of Asia or North America.

They require a soil rather light than otherwise, on account of their hair-like roots; and to be placed against a wall, in the climate of London, when it is intended that they should flower freely. In affinity, as well as in general appearance, this genus approaches near to that of Halès*ia*; and there is such a close general resemblance among all the allied species of *Sty*rax, that they may possibly be only varieties of one form. Seeds or layers.

#### ♆ ✿ 1. *S.* OFFICINA'LE *L.* The officinal Storax.

*Identification.* Lin. Sp., 635.; N. Du Ham., 7. p. 7.; Don's Mill., 4. p. 4.
*Synonymes.* Lagomēlia, *Modern Greek*; Sturax kalamitēs, *Ancient Greek*
*Engravings.* Bot. Rep., 631.; Bot. Cab., 928.; and our *fig.* 1199.

*Spec. Char., &c.* Leaves ovate, clothed with hoary hairs beneath, shining and green above. Racemes simple and axillary, 5—6-flowered, shorter than the leaves. Leaves about 2 in. long. Flowers white. Drupe ovate globose. (*Don's Mill.*) A deciduous shrub or low tree. Syria and the Levant. Height 12 ft. to 15 ft. against a wall; as bushes, in the climate of London, seldom half so high. Introduced in 1597. Flowers white, resembling those of the orane, but smaller; June and July. Drupe ovate, greenish; ripe in October.

It well merits a place against a wall, on account of the beauty of its pure white flowers, and the great profusion in which they are produced. A light sandy soil, rich rather than poor, suits this species best; and it is generally propagated by seeds obtained from the South of France. It will also grow by layers, and by cuttings. Its rate of growth, for the first ten years, is not above 8 or 9 inches a year.

1199. *S.* officinale

#### ♆ ✿ 2. *S.* (o.) GRANDIFO'LIUM *Ait.* The large-leaved Storax.

*Identification.* Ait. Hort. Kew., 2. p. 75.; Pursh Sept., 2. p 450.; Don's Mill., 4. p. 4.
*Synonymes.* *S.* officinàle *Watt. Fl. Carol.* 140.; *S.* grandifōlium *Michx. Fl. Bor. Amer.* 2. p. 41.
*Engravings.* Bot. Cab., t. 1016., Dend. Brit., t. 129.; and our *fig.* 1200.

*Spec. Char., &c.* Leaves broad, obovate, acuminated, green above, but clothed with hoary tomentum beneath. Lower peduncles solitary, 1-flowered. Flowers white. (*Don's Mill.*) A deciduous shrub or low tree; growing in

woods, on the banks of rivers, from Virginia to Georgia. Height 8 ft. to 10 ft. Introduced in 1765. Flowers white; June to August.

Halèsia díptera, the leaves of which closely resemble those of Styrax grandifòlium, but differ from it in not being downy beneath, is frequently sold for it in the nurseries.

1200. S. (o.) grandifolium.

3. *S.* (o.) LÆVIGA'TUM *Ait.* The smooth-*leaved* Storax.

*Identification.* Ait. Hort. Kew., 2. p. 72.; Willd. Sp. Pl., 2. p. 624.; Don's Mill., 4. p. 4.
*Synonymes.* *S.* octándrum *L'Hérit. Stirp. Nov.* 2. t. 17.; *S.* glábrum *Cav. Diss.* 6. p. 340. t. 188. f. 1.; *S.* læve *Walt. Fl. Carol.* 140.; *S.* americànum *Lam. Dict.* 1. p. 82.
*Engravings.* Bot. Cab., t. 960.; Dend. Brit., t. 40.; our *fig.* 1201., and *fig.* 1202. from a plant in Messrs. Loddiges's collection.

*Spec. Char., &c.* Leaves oval-lanceolate, acute at both ends, glabrous on both surfaces, toothed. Peduncles axillary, or twin, 1-flowered. Stamens from 6 to 10. (*Don's Mill.*) A deciduous shrub, bearing a close resemblance to *S.* officinàle, but smaller in all its parts. South Carolina and Virginia, in swamps. Height 3 ft. to 4 ft. Introduced in 1765. Flowers white; July and August.

In fine seasons, the flowers are succeeded by fruit about the size of a red currant, or of the fruit of the nettle tree.

1201. S. (o.) lævigàtum.

1202. S. (o.) lævigàtum.

4. *S.* (o.) PULVERULE'NTUM *Michx.* The powdery Storax.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 41.; Don's Mill., 4. p. 4.
*Synonyme.* *S.* lævigàtum *Bot. Mag.* t. 921.
*Engravings.* Bot. Mag., t. 921.; Dend. Brit., t. 41.; and our *fig.* 1203.

*Spec. Char., &c.* Leaves almost sessile, ovate or obovate, obtuse, clothed with powdery tomentum beneath. Flowers axillary, and nearly terminal by threes, on short pedicels. (*Don's Mill.*) A deciduous shrub, bearing a close resemblance to *S.* grandifòlium. Virginia and Carolina, in woods. Height 4 ft. to 6 ft. Introduced in 1794. Flowers white; June to August.

1203. S. (o.) pulveruléntum.

## ORDER XLV. HALESIACEÆ.

*ORD. CHAR.* *Calyx* 4-toothed. *Corolla* campanulate, 4-lobed. *Stamens* 12—16; monadelphous at the base, and adnate to the corolla. *Ovarium* inferior. *Style* and *Stigma* simple. *Drupe* dry, with 2—4 winged angles, contain-

ing a 2—4-celled nut. *Cells* 1-seeded. *Albumen* fleshy.—The inferior ovarium is sufficient to distinguish this from all nearly allied orders. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; serrated or nearly entire. *Flowers* in fascicles, pedicellate, drooping, white.—Trees or large shrubs, deciduous; natives of North America.

## Genus I.

HALE'S*IA* Ellis. The Halesia, *or* Snowdrop Tree. *Lin. Syst.* Dodecándria Monogýnia.

*Identification.* Ellis in Lin. Gen., No. 596.; Don's Mill., 4. p. 6.
*Synonyme.* Halésie, *Fr.* and *Ger.*
*Derivation.* Named by Ellis in honour of the learned and venerable *Stephen Hales*, D.D. F.R.S., author of *Vegetable Statistics.*

*Gen. Char., &c.* *Corolla* monopetalous, ventricosely campanulate, with a 4-lobed erect border. *Stamens* 12 to 16; filaments combined into a tube at the base, and adnate to the corolla. *Anthers* oblong, erect, 2-celled, dehiscing lengthwise. *Ovarium* inferior. *Style* 1. *Stigma* simple. *Drupe* dry, corticate, oblong, with 2—4 winged angles, terminated by the permanent style; containing a 2—4-celled putamen, which is acute at both ends. *Cells* 1-seeded. *Seeds* attached to the bottom of the cells.

*Leaves, &c.*, as in the Order. *Flowers* in lateral fascicles, pedicellate, drooping, white.—Trees, deciduous; natives of North America; very hardy in England; thriving best in peat soil kept moist, and ripening seeds, from which, or from layers, they are readily propagated.

♃ 1. H. tetra'ptera *L.* The four-winged-*fruited* Halesia, *or common Snowdrop Tree.*

*Identification.* Lin. Sp., 636.; Ellis in Phil. Trans., vol. 51. p. 931. t. 22. f. A.; Don's Mill., 4. p. 6.
*Synonymes.* The Snowdrop Tree, Silver Bell Tree, *Amer.*
*Engravings.* Bot. Mag., t. 910.; Bot. Cab., t. 1173.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *figs.* 1204, 1205.

*Spec. Char., &c.* Leaves ovate-lanceolate, acuminated, sharply serrated. Petioles glandular. Fruit with 4 wings. Leaves acuminated, with the middle depressed. Flowers pure white, 9—10 in a fascicle, drooping, resembling those of the snowdrop. The wood is hard and veined; the bark is of a darkish colour, with many irregular fissures. (*Don's Mill.*) A low deciduous tree. South Carolina, along the banks of rivers. Height 15 ft. to 30 ft. Introduced in 1756. Flowers white; April and May. Fruit brown; ripe in October, and remaining on great part of the winter.

1204. H. tetráptera.

Its flowers, which resemble those of the snowdrop, are produced in great abundance. The tree is one of the hardiest, and, at the same time, one of the most ornamental of the American deciduous trees. The rate of growth, for the first five or six years, is 12 or 18 inches, or more, a year; and in ten years it will attain the height of 12 or 15 feet, if properly treated; but, as it is generally kept too dry, it is seldom seen at above half this height at that age. It ripens seeds freely in this country; from which, or from imported seeds, it is readily increased. The seeds often remain above a year in the ground.

1205. H. tetráptera.

✝ 2. H. (T.) PARVIFLO`RA *Michx.* The small-flowered Halesia, *or Snowdrop Tree.*

*Identification.* Michx. Fl. Bor. Amer., 2. p. 40.; Pursh Sept., 2. p. 450.; Don's Mill., 4. p. 6.
*Engravings.* Bot. Reg., t. 952.; and our *fig.* 1206.

*Spec. Char., &c.* Leaves ovate, oblong, acute, nearly entire. Flowers octandrous. Fruit clavate, slightly winged. Leaves downy, glaucous beneath. Racemes panicled. Flowers white, drooping. Calycine teeth ovate. (*Don's Mill.*) A low deciduous tree. Florida. Height 10 ft. Introduced in 1802. Flowers white; May. Horticultural Society's Garden.

Obviously a seminal variety of the preceding species.

1206. H. (t.) parviflòra.

✝ 3. H. DI'PTERA *L.* The two-winged-*fruited* Halesia, *or Snowdrop Tree.*

*Identification.* Lin. Sp. Pl., 636.; Don's Mill., 4. p. 7.
*Engravings.* Bot. Cab., t. 1172.; and our *fig.* 1207.

*Spec. Char., &c.* Leaves ovate, acute, serrated. Petioles smooth and even. Pedicels elongated. Fruit with 2 large opposite wings, and 2 obsolete ones. Flowers octandrous. Leaves much larger than those of either of the preceding species. (*Don's Mill.*) A low deciduous tree. Georgia and Carolina, in shady places, on banks of rivers. Height 10 ft. Introduced in 1758. Flowers white; April and May.

1207. H. díptera.

The leaves of this species are broad, resembling those

of Stŷrax grandifŏlium, with which, as it does not frequently flower in a young state, it is generally confounded in nurseries.

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## Order XLVI. *SAPOTA'CEÆ.*

*Ord. Char.* *Calyx* regular, persistent. *Corolla* of as many lobes as there are divisions in the calyx, rarely double or triple that number, deciduous. *Stamens* epipetalous, distinct, definite; fertile ones equal in number to the segments of the calyx, alternating with the segments of the corolla; sterile ones, when present, alternating with the fertile ones. *Ovarium* many-celled. *Cells* 1-seeded. *Berry* many-celled, or only 1-celled by abortion. *Seeds* nucamentaceous. *Testa* bony, scraped in front. *Albumen* fleshy. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous or evergreen; quite entire, coriaceous. *Flowers* axillary.— Shrubs or low trees; natives of Africa and America. The genera are two, and in British gardens they require a wall.

*Arga'nia.* Calyx 10-parted. Corolla 5-cleft. Drupe containing a 2—3-celled nut.

*Bume'lia.* Calyx and Corolla 5-parted. Stamens 10. Berry 1-seeded

### Genus I.

*ARGA'NIA* Rœm. et Schultes. The Argania. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Rœm. et Schultes Syst., 46.; Don's Mill., 4. p. 27.
*Synonymes.* Sideróxylon spinòsum *Lin.*; l'Argan, *Fr.*; Eisenholz, *Ger.*
*Derivation.* From *argan*, the aboriginal name of the tree.

*Gen. Char., &c.* *Calyx* 5—10-cleft: the *leaflets*, or rather *scales*, roundish, concave, disposed in a double series. *Corolla* cup-shaped, 5-parted, with ovate-lanceolate subemarginate segments; having 5 petal-like linear-subulate segments adhering to the base of the corolla, and alternating with its segments. *Stamens* 5, filiform, length of corolla, and adnate to its base. *Anthers* incumbent, ovate, keeled on the back. *Ovarium* conical, hairy. *Style* glabrous, length of stamens. *Stigma* simple. *Drupe* ovate, terminated by the style, 2—3-celled. *Cells* 1-seeded. *Seeds* hard, smooth, having a longitudinal furrow inside. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, sub-evergreen; entire. *Flowers* lateral, axillary, scattered or crowded, sessile. Corolla greenish yellow. Fruit dotted with white, size of a plum, full of white milky juice.— Tree or large shrub, sub-evergreen; native of Morocco, and somewhat tender in British gardens.

1208. *A.* Siderozylon.

♃ ■ 1. *A.* Sidero'xylon *Rœm. et Schultes.* The Iron-wood Argania.

*Identification.* Rœm. et Schultes Syst., 4. p. 502.; Don's Mill., 4. p 28.
*Synonymes.* Sideróxylon spinòsum *Lin. Sp.* p. 279.; Elæodéndron *A'rgan* Retz. Obs. 6. p. 26.; *Rhámnus* pentaphýllus *Jacq. et Boccone, Schousb. Mar.* p. 89.; *Rhámnus* siculus *Lin. Syst.* 3. p. 227.
*Engravings.* Comm. Hort., t. 83.; and our *fig.* 1208

*Spec. Char., &c.* An evergreen tree of middle size, with a bushy head. Branches terminated by strong spines. Leaves lanceolate, entire, bluntish,

glabrous, paler beneath ; the lower ones in fascicles. Flowers lateral, and axillary, scattered or crowded, sessile. Corolla greenish yellow. Fruit dotted with white, size of a plum, full of white milky juice. (*Don's Mill.*) A low sub-evergreen tree. Morocco, in woods. Height 15 ft. to 20 ft. against a wall ; not half that height as a bush. Introduced in 1711. Flowers greenish yellow.

It will stand our winters as a standard, but thrives best when planted against a wall. Horticultural Society's Garden.

## Genus II.

*BUME'LIA Swartz.* The Bumelia. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Swartz Prod., p. 49. ; Fl. Ind. Occ., 1. p. 493. ; Don's Mill., 4. p 29.
*Synonymes.* *A'*chras sp. *Lin.*, *Poir.* ; Sideróxylon sp. *Lam.* and others ; Chrysophýllum sp. *Aubl.* and others ; Hochstamm, *Ger.*
*Derivation.* From *boumelia*, the Greek name for the common ash.

*Gen. Char., &c.* *Calyx* 5-parted. *Corolla* with a short tube, and a 5-parted limb, furnished with 2 scales at the base of each segment. *Stamens* 5, inserted in the tube of the corolla, and opposite its segments, having as many membranous scales, or sterile filaments, alternating with them. *Ovarium* 5-celled. *Cells* 1-ovuled. *Stigma* simple. *Drupe* ovate, 1-seeded. *Seed* albuminous. (*Don's Mill.*)

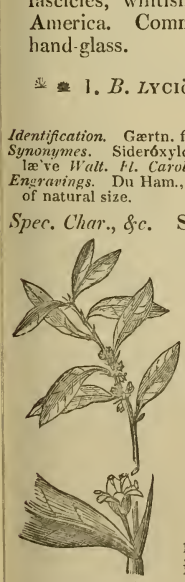
*Leaves* simple, alternate, exstipulate, sub-evergreen ; scattered, entire. *Flowers* in axillary and lateral peduncles, usually 1-flowered, crowded in fascicles, whitish.—Trees, in British gardens shrubs; natives of South America. Common soil ; and cuttings of the young wood in sand, under a hand-glass.

1. *B.* LYCIÖI'DES *Gærtn.* The Box-thorn-like Bumelia.

*Identification.* Gærtn. fil. Carp., 3. p. 127. t. 120. ; Don's Mill., 4. p. 30.
*Synonymes.* Sideróxylon *lyciöides* *Du Ham. Arb.* 2. p. 260. t. 68. ; S. læ've *Walt. Fl. Carol.* p. 100. ; Lyciöides sp. *Lin. Hort. Cliff.* p. 488.
*Engravings.* Du Ham., 2. p. 260. t. 68. ; and our *fig.* 1209., and *fig.* 1210. of natural size.

*Spec. Char., &c.* Spiny. Leaves broad-lanceolate, bluntish, tapering to the base, glabrous. Flowers in axillary fascicles. Spines subulate. Leaves 2 in. long, deciduous, a little silky while young. Flowers greenish white. Segments of corolla ? trifid : perhaps from the two scales inside each segment. (*Don's Mill.*) A sub-evergreen shrub. Carolina, in shady woods. Height 8 ft. to 10 feet. Introduced in 1758. Flowers greenish white.

Scarcely injured by the winter of 1837–8, in the Hort. Soc. Gard.; and from this, and also from the beauty of its foliage and flowers, deserving to be much more generally introduced.



1209. *B. lyciöides.*

1210. *B. lyciöides.*

2. *B.* RECLINA'TA *Vent.* The reclinate-*branched* Bumelia.

*Identification.* Vent. Choix, t. 22. ; Pursh Sept., 1. p. 155. ; Don's Mill., 4. p. 30.
*Synonyme.* Sideróxylon reclinàtum *Michx. Fl. Bor. Amer.* 1. p. 122.

*Engravings.* Vent. Choix., t. 22.; and our *fig.* 1211.

*Spec. Char., &c.* Spiny, bushy, diffusely reclinate. Leaves small, obovate, quite smooth. Flowers in axillary fascicles. Young branches terminated by a long spine. Leaves alternate, or in fascicles. Corolla and scales serrated. Sterile filaments subulate, entire. Drupe ovate. (*Don's Mill.*) A small straggling shrub. Georgia, on the banks of rivers. Height 3 ft. to 4 ft. Introduced in 1806. Flowers small, white; January.

1211. *B.* reclinàta.

♃ ♅ 3. *B.* TE'NAX *Willd.* The tough-*branched* Bumelia.

*Identification.* Willd. Sp., 1. 1085.; Enum., p. 248.; Don's Mill., 4. p. 30.
*Synonymes.* B. chrysophyllòides *Pursh Fl. Amer. Sept.* 1. p. 155.; Sideróxylon tènax *Lin. Mant.* p. 48.; S. sericeum *Walt. Fl. Car.* p. 100.; S. chrysophyllòides *Michx. Fl. Bor. Amer.* 1. p. 123.; Chrysophyllum carolinènse *Jacq. Obs.* 3. p. 3. t. 54.; C. glàbrum *Juss.*
*Engravings.* Jacq. Obs., 3. t. 54.; and our *fig.* 1212.

1212. *B.* tènax.

*Spec. Char., &c.* Leaves obovate-lanceolate, of a rusty silvery colour beneath, silky. Flowers in axillary fascicles. Branches very tough. Bark white. Leaves deciduous. Calycine and corolline segments ovate obtuse. Segments of nectary trifid. Stamens the length of corolla. Drupe oval. (*Don's Mill.*) A low tree, in England a shrub. Carolina, in dry situations. Height 20 ft. Introduced in 1765. Flowers small, white, produced freely; July and August.

Killed to the ground, by the winter of 1837–8, in the Hort. Soc. Garden.

♃ 4. *B.* LANUGINO'SA *Pursh.* The woolly-*leaved* Bumelia.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 155.; Don's Mill., 4. p. 30.
*Synonymes.* Sideróxylon lanuginòsum *Michx. Fl. Bor. Amer.* 1. p. 123.; S. tènax *Walt. Fl. Car.* p. 100.
*Engraving.* Our *fig.* 1213., from a specimen in Dr. Lindley's herbarium.

*Spec. Char., &c.* Rather spinose. Branchlets spreading, downy. Leaves oval-lanceolate, glabrous above, and woolly beneath, but not silky. Flowers in axillary fascicles; very nearly allied to *B.* tènax, but differs in the leaves being woolly beneath, not silky, often obtuse. (*Don's Mill.*) A small tree. Carolina and Georgia, in humid situations among bushes. Height 10 ft. to 15 ft. Introduced in 1806. Flowers greenish yellow.

1213. *B.* lanuginòsa.

♃ 5. *B.* OBLONGIFO'LIA *Nutt.* The oblong-leaved Bumelia.

*Identification.* Nutt. Gen. Amer., 1. p. 135.; Don's Mill., 4. p. 30.
*Engraving.* Our *fig.* 2095. in p. 1108.

*Spec. Char., &c.* Spiny. Leaves smooth, oblong, obtuse, deciduous. Flowers conglomerate, nearly sessile, very numerous. Scales, or sterile filaments, trifid. Tree with numerous twisted branches. Calycine segments ovate, concave. Drupe purple. Wood fetid. (*Don's Mill.*) A low tree. North America, on the Mississippi, near the lead mines of St. Louis. Height 18 ft. to 20 ft. Introduced in 1818. Flowers greenish yellow, produced in abundance; July and August.

## ORDER XLVII. *EBENA'CEÆ.*

*ORD. CHAR.* *Calyx* 3- or 6-parted, persistent. *Corolla* deciduous, 3- or 6-parted; stivation imbricate. *Stamens* definite, epipetalous, 6 or 12, or

more. *Ovarium* many-celled; cells 1—2-seeded. *Style* usually divided *Stigmas* bifid or trifid. *Berry* few-seeded by abortion. *Albumen* cartilaginous. The double stamens, pendulous ovule, and unisexual flowers, distinguish this order. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; quite entire, coriaceous. *Flowers* axillary, peduncles solitary.

## Genus I.

DIOSPY'ROS *L.* The Date Plum. *Lin. Syst.* Polygàmia Diœ'cia.

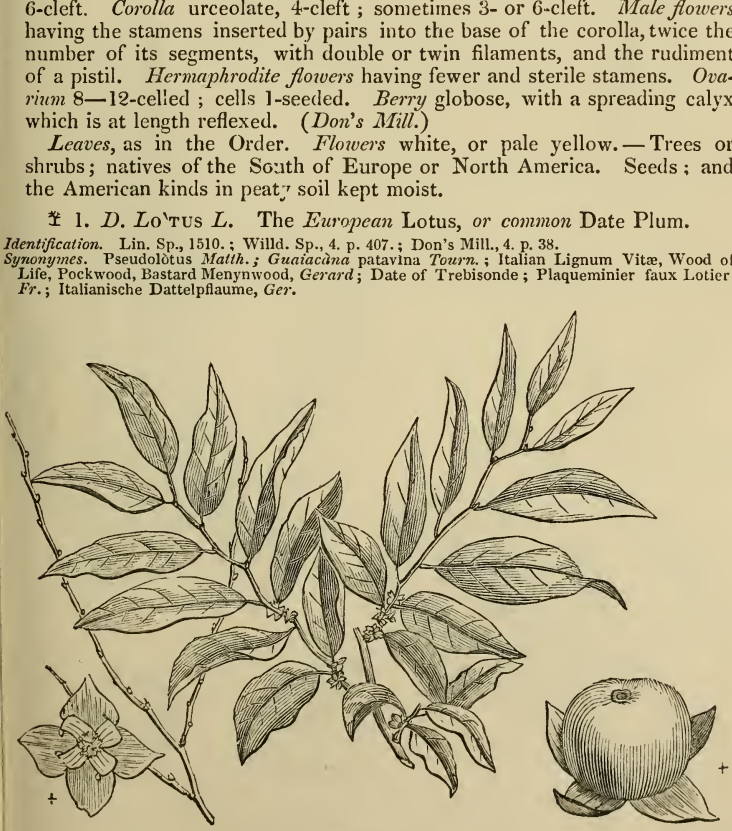
*Identification.* Lin. Gen., No. 1161.; Don's Mill., 4. p. 38.
*Synonymes.* E'benus *Comm.*; *Guaiacàna* Tourn. 371.; Plaqueminier, *Fr.*; Dattelpflaume, *Ger.*
*Derivation.* Diospuros (*dios*, divine, and *puros*, wheat,) was a name given by the ancients to the common gromwell (*Lithospêrmum officinàle*). Its application to the date plum probably arose from confounding the Greek *puros*, wheat, with the Latin *pyrus*, a pear tree, to the fruit of which the date plum may have been thought to bear some resemblance.

*Gen. Char., &c.* *Flowers* polygamous. *Calyx* deeply 4-cleft, sometimes 3- or 6-cleft. *Corolla* urceolate, 4-cleft; sometimes 3- or 6-cleft. *Male flowers* having the stamens inserted by pairs into the base of the corolla, twice the number of its segments, with double or twin filaments, and the rudiment of a pistil. *Hermaphrodite flowers* having fewer and sterile stamens. *Ovarium* 8—12-celled; cells 1-seeded. *Berry* globose, with a spreading calyx which is at length reflexed. (*Don's Mill.*)

*Leaves*, as in the Order. *Flowers* white, or pale yellow.—Trees or shrubs; natives of the South of Europe or North America. Seeds; and the American kinds in peaty soil kept moist.

♃ 1. *D. Lo'tus L.* The *European* Lotus, *or common* Date Plum.

*Identification.* Lin. Sp., 1510.; Willd. Sp., 4. p. 407.; Don's Mill., 4. p. 38.
*Synonymes.* Pseudolòtus *Matth.*; *Guaiacàna* patavina *Tourn.*; Italian Lignum Vitæ, Wood of Life, Pockwood, Bastard Menynwood, *Gerard*; Date of Trebisonde; Plaqueminier faux Lotier *Fr.*; Italianische Dattelpflaume, *Ger.*



1214. *D. Lotus.*

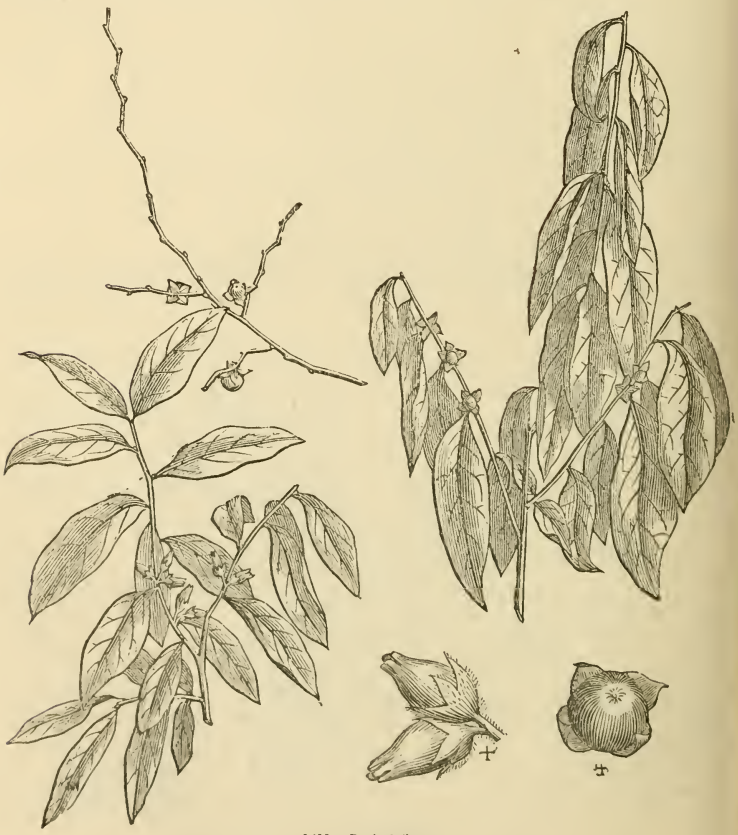
*Engravings.* Pall. Fl. Ross., 1. p. 20. t. 58.; Wangh. Amer., 84. t. 28 f. 58.; the plates in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 1214.

*Spec. Char., &c.* Leaves oblong, acuminate, downy beneath; leaf buds hairy inside. Flowers small, reddish white. Fruit size of a cherry, yellow when ripe, sweet with astringency: it is recommended as a cure for diarrhœa. (*Don's Mill.*) A low tree. Caucasus, the woods of Hyrcania, and the whole coast of the Caspian Sea, and Mauritania. Height 20 ft. to 30 ft., and sometimes much higher. Introduced in 1596. Flowers reddish, or yellowish white; July. Fruit yellow; ripe in October.

The leaves are of a beautiful dark glossy green above, and, when mature, and exposed to the air, assume a purplish hue beneath: they do not change colour in autumn, but drop off simultaneously with the first attack of sharp frost. Ripening its fruit freely in the South of France and Italy, seeds have been readily procured; and the plant has never been rare in British collections; but, as it is somewhat tender, there are few la ge specimens of it. It grows at the rate of 12 or 18 inches a year, for the first ten years, especially if the soil in which it is planted is free and loamy, and rich rather than poor.

♱ 2. *D.* VIRGINIA'NA *L.* The Virginian Date Plum, *or Persimon.*

*Identification.* Lin. Sp., 1510.; Don's Mill., 4. p. 39.
*Synonyme.* *Guaiacàna* Catesb. Car. 2. t. 76.
*Engravings.* Dendr. Brit., t. 146.; the plates in Arb. Brit., 1st edit.; and our *fig.* 1215.



1215. *D.* virginiàna.

*Spec. Char., &c.* Leaves ovate-oblong, acuminated, glabrous, shining above,

and paler beneath, reticulately veined. Petioles short and curved, and, as well as the branchlets, downy. Leaf buds glabrous. Flowers quadrifid, rarely quinquefid. Flowers pale yellow. (*Don's Mill.*) A low tree. United States. Height 20 ft. to 30 ft. in the neighbourhood of London, but much higher in the United States. Introd. in 1629. Flowers pale yellow; July. Fruit yellow; ripe about the time the tree drops its leaves in November.

The persimon is readily distinguished from the European date plum, by its leaves being nearly of the same shade of green on both surfaces; while those of the latter are of a dark purplish green above, and much paler, and furnished with somewhat of a pinkish down, beneath. The leaves of the persimon vary from 4 in. to 6 in. in length; and, when they drop off in the autumn, they are often variegated with black spots. It is rather more tender than the preceding species; and, to thrive, requires a peaty or soft soil, kept somewhat moist.

*ℓ 3. *D.* (v.) PUBE'SCENS *Pursh.* The downy-*leaved* Virginian Date Plum.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 265.; Don's Mill., 4. p. 38.
*Synonyme.* *D.* virginiàna var. *Michx. Arb. For.*
*Engraving.* Our *fig.* 1216., from a specimen in Dr. Lindley's herbarium.

*Spec. Char., &c.* Leaves oblong, acute, downy beneath. Petioles long. Fruit few-seeded. (*Don's Mill.*) A low tree. Virginia, Carolina, and Georgia. Height 20 ft. to 30 ft. Introduced in 1812. Flowers pale yellow; July. Horticultural Society's Garden.

1216. *D.* (v.) pubéscens.

*Other Kinds of hardy* Diospỳros.—There are several names in the catalogues of American nurserymen, and in 1836 there were plants corresponding to these names in the Hort. Soc. Garden. These we have examined, and we are perfectly satisfied that they are only slight variations of *D.* virginiàna, and, in short, that this is the only North American species. *D.* lùcida, *D.* intermèdia, *D.* dígyna, and *D.* stricta are included in the above remarks.

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## ORDER XLVIII. *OLEA'CEÆ.*

*ORD. CHAR.* *Flowers* hermaphrodite, sometimes diœcious. *Calyx* divided, permanent. *Corolla* 4-cleft; sometimes 4-petaled. *Petals* connected by pairs, rather valvate in æstivation; sometimes wanting. *Stamens* 2, alternating with the segments or petals. *Anthers* 2-celled; cells dehiscing lengthwise. *Ovarium* simple, guarded by no glandular disk, 2-celled; cells 2-seeded. *Ovules* pendulous, collateral. *Style* simple or wanting. *Stigma* bifid or undivided. *Fruit* drupaceous, baccate or capsular, often 1-seeded by abortion. *Seeds* with dense copious albumen. *Embryo* middle-sized, longitudinal, straight. *Cotyledons* foliaceous, half free. *Radicle* superior. *Plumule* inconspicuous.—Trees and shrubs, natives of both hemispheres, and for the most part deciduous. (*Don's Mill.*)

*Leaves* simple or compound, opposite, exstipulate, deciduous or evergreen; entire or serrated. *Flowers* racemose or panicled, terminal or axillary, with opposite unibracteate pedicels.

The *Syrínga* supplies some of our most beautiful deciduous shrubs, and the *Ligústrum* and *Phillýrea* some useful evergreens. Some of these, as *Fráxinus*, are timber trees. All the species are remarkable for the production of numerous white fibrous roots, in dense masses, near the surface of the

ground. in consequence of which they are all easily transplanted when young, and injurious to plants growing under them when full grown. The genera are arranged in 3 sections.

### Sect. I. *Ole'inæ.*

*Sect. Char.* Corolla short, monopetalous, campanulate or urceolate, 4-cleft. Stamens 2, with short filaments, and erect anthers. Fruit drupaceous. Shrubs with simple leaves, more or less coriaceous, and in some species evergreen.

Ligu'strum *Tourn.* Corolla funnel-shaped. Stamens enclosed. Stigma bifid. Berry globose, containing two chartaceous nuts.

Philly'rea *Dioscc.* Corolla campanulate. Stamens a little exserted. Stigma thickish. Berry globose.

Chiona'nthus *Lin.* Calyx 4-parted. Segments of corolla linear. Stamens enclosed. Stigma trifid. Drupe containing a striated 1-seeded nut.

### Sect. II. *Syri'ngeæ.*

*Sect. Char.* Corolla funnel-shaped or campanulate, 4—5-parted. Stamens 2, short. Fruit capsular, 2-celled. Deciduous shrubs. Leaves simple.

*Syri'nga* Lin. Calyx 4-toothed. Corolla funnel-shaped, 4-parted. Stamens enclosed. Stigma bifid. Capsule 2-celled, 2-valved. Seeds compressed, with membranous margins.

Fontane'sia Labill. Calyx 4-parted. Corolla of 2 petals. Stamens elongated, and stigma bifid. Capsule papery, indehiscent. Cells 1-seeded.

### Sect. III. *Fraxinie'æ.*

*Sect. Char.* Flowers polygamous. Calyx 4-parted or wanting. Stamens 2, short. Anthers dehiscing externally. Stigma nearly sessile, bifid. Fruit 2-celled, compressed, winged at the top, usually 1-seeded. Trees deciduous, with compound leaves.

*Fra'xinus Tourn.* Flowers polygamous. Petals wanting. Samara 1-celled.

*O'rnus Pers.* Flowers hermaphrodite or polygamous. Petals 4. Samara 2-celled.

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## Sect. I. *Ole'inæ.*

## Genus I.

LIGU'STRUM *Tourn.* The Privet. *Lin. Syst.* Diándria Monogýnia.

*Identification.* Tourn. Inst., t. 367. ; Lin. Gen., No. 9. ; Don's Mill., 4. p. 44.
*Synonymes.* Troëne, *Fr.* ; Rainweide, *Ger.*
*Derivation.* Said to be from *ligo*, to tie ; in reference to its flexible branches.

*Gen. Char.* *Calyx* short, tubular, 4-toothed. *Corolla* funnel-shaped, with the tube exceeding the calyx, and the limb 4-parted. *Stamens* 2, with short filaments, inserted into the tube of the corolla. *Style* very short. *Stigma* obtuse, bifid. *Berry* globose, containing 2 chartaceous 1-seeded nuts. *Albumen* hardish. *Embryo* inverted. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, evergreen or deciduous ; entire, glabrous. *Flowers* terminal, compound, in thyrsoid racemes.—Shrubs or low trees ; natives of Europe or Asia.

Readily propagated by cuttings in common soil.

### ♣ ■ ♆ ♀ 1. *L.* VULGA'RE *Trag.* The common Privet.

*Identification.* Trag. Hist., 1005.; Lin. Sp., 1. p. 10.; Don's Mill., 4. p. 44.
*Synonymes.* *L.* germánicum *Bauh. Hist.* 475.; Prim, or Prim-print; Troëne, Puine blanc, *Fr.*; gemeine Rainweide, *Ger.*; Ligustro Olivella, *Ital.*
*Derivation.* This plant was anciently called prim, or prim-print, from its being used for verdant sculptures, or topiary work, and for primly cut hedges. Puine blanc seems to imply a "little white shrub," from the whiteness of the blossom of the privet; which is alluded to by Virgil and other poets, but which soon vanishes, and changes to brown, when exposed to the direct influence of the sun. The German name is combined of *rain*, green, and *weide*, a willow; alluding to its being supple like the willow, and nearly evergreen. Olivella seems to signify the little olive. The common English name of Privet may have been given to it from its being frequently planted in gardens to conceal privies.
*Engravings.* Engl. Bot., t. 764.; Baxt. Brit. Fl. Pl., vol. 2. t. 119.; and our *figs.* 1217. and 1218.

*Spec. Char., &c.* Leaves elliptic-lanceolate, glabrous. Racemes compound, coarctate. The flowers are sweet-scented, white at first, but soon change to a reddish brown. Berries dark purple, almost black. (*Don's Mill.*) A sub-evergreen shrub. Britain, in hedges and woody wastes. Height 6 ft. to 10 ft. Flowers white; June and July. Berries dark purple; ripe in November, remaining on all the winter.

1217. *L.* vulgàre.

1218. *L.* vulgàre.

1219. *L.* v. sempervìrens.

*Varieties.*

- ♣ L. *v.* 2 *leucocárpum.*—Berries white.
- ♣ L. *v.* *xanthocárpum.*—Berries yellow.
- ♣ L. *v.* 4 *chlorocárpum.*—Berries green.
- ♀ ♣ L. *v.* 5 *sempervìrens.* *L.* itálicum *Mill.*, and our *fig.* 1219.; the Italian, or evergreen, Privet.—This is a most desirable variety for shrubberies; and it is so distinct, that it was considered by Miller as a species.
- ♣ L. *v.* 6 *variegàtum.*—Leaves variegated with yellow.
- ♣ L. *v.* 7 *angustifòlium.*—Leaves narrow.

The leaves, in exposed situations, and on poor soils, are deciduous; but in sheltered situations, and more especially when the plant is cultivated in gardens, they remain on throughout the winter. From its property of growing under the drip of trees, it forms a good sub-evergreen undergrowth, where the box, the holly, or the common laurel, would be too expensive, or too tedious of growth. The privet has been long used in the court-yards of dwelling-houses, for concealing naked walls, and preventing the eye from seeing objects or places which it is considered desirable to conceal from the view. It thrives well in towns where pit-coal is used; and the best hedges surrounding the squares of London are of this shrub. It is admirably adapted for topiary work, and in Italian gardens, in a British climate, it forms as good a substitute for the olive, as the common laurel does for the orange. The privet grows best in rather a strong loam, somewhat moist; and it attains the largest size in an open situation; but it will grow on any soil, and under the shade and drip of deciduous trees. In British nurseries, it is almost always raised by cuttings, which not only produce larger plants of the species in a shorter period, but continue the varieties with greater certainty. When plants are to be raised from seed, the berries

should be treated like haws, and kept a year in the rot-heap, or sown immediately after being gathered, as, if otherwise treated, they will not come up for 18 months. As shrubs, privet plants require very little pruning; but, as low trees, they must have the side shoots from the stem carefully rubbed off whenever they appear. Treated as hedges, or as verdant sculptures, they may be clipped twice a year, in June and March; and, every five or six years, the sides of the hedges ought to be severely cut in, one side at a time, so as to remove the network of shoots, which, in consequence of continual clipping, forms on the exterior surface, and which, by preventing the air from getting to the main stems, would in time seriously injure the plants.

♃ ♣ ♈ ♀ 2. *L.* SPICA'TUM *Hamilt.* The spiked-*flowered* Privet.

*Identification.* Hamilt. MSS. ex D. Don Prod. Fl. Nep., p. 107.; Don's Mill., 4. p. 45.
*Synonymes.* *L.* nepalénse *Wall.* in *Rox. Fl. Ind.* 1. p. 151.; *L.* lanceolàtum *Herb. Lamb.*
*Engravings.* Pl. Asiat. Rar., 3. p. 17. t. 231.; and our *fig.* 1220.

*Spec. Char., &c.* Leaves elliptic, acute, hairy beneath, as well as the branchlets. Flowers crowded, almost sessile, spicate, disposed in a thyrse, having the axis very hairy. Bracteas minute. (*Don's Mill.*) A sub-evergreen shrub. Nepal, on mountains. Height 6 ft. to 8 ft. Introduced in 1823. Flowers white; June and July.

1220. *L.* spicàtum.

1221. *L.* s. glàbrum.

*Variety.*

♃ ♣ L. *s.* 2 *glàbrum* Hook. in Bot. Mag. t. 2921., and our *fig.* 1221.—A native of Nepal, where it is called Goom gacha. The trunk and limbs are covered with warts, but the young branches are glabrous.

Though commonly treated as a green-house plant, there can be little doubt of its being as hardy as *L.* lùcidum, the species to be next described. It should be grafted on the common privet; and, if planted in a dry soil and rather sheltered situation open to the sun, it will be the more likely to make no more wood than what it can ripen before winter.

♃ ♣ ♈ ♀ 3. *L.* LU'CIDUM *Ait.* The shining-*leaved* Privet, *or Wax Tree.*

*Identification.* Ait. Hort. Kew., 1. p. 19.; Don's Mill., 4. p. 45.
*Engravings.* Bot. Mag., t. 2565.; and our *fig.* 1222.

*Spec. Char., &c.* Leaves ovate-oblong, acuminated, shining above. Panicles thyrsoid, spreading much. Leaves broad. Flowers white. This tree affords a kind of waxy matter. (*Don's Mill.*) A low sub-evergreen tree. China. Height 10 ft. to 20 ft. Introduced in 1794. Flowers white; September and October: and, as in the preceding species, not followed by fruit in England.

*Variety.*

♣ ♀ L. *l.* 2 *floribúndum* Donald's Cat., and our *fig.* 1223., has larger bunches of flowers than the species.

A very handsome low sub-evergreen tree; or, when it is not trained to a single stem, a large showy bush.

1222. *L.* lùcidum.

1223. *L.* l. floribúndum.

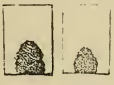
1224. *L.* salicifòlium.

L. *salicifòlium.* — A plant to which this name might be suitable was in the arboretum at Kew from 1823 to the winter of 1837-8, when it was killed; and there are also young plants of it in the Horticultural Society's Garden, of one of which *fig.* 1224. is a specimen.

L. *japónicum* Thunb. Fl. Jap. p. 17. t. 1., and our *fig.* 1225.; *L.* latifòlium *Vitm.*; is a native of Japan, with oblong-ovate grooved leaves, and white flowers, growing to the height of 6 or 8 feet. — L. *nepalénse* has oval-lanceolate serrated leaves, and is a very distinct species. H. S.

1225. *L.* japónicum.

## Genus II.



PHILLY'REA *Tourn.* The Phillyrea. *Lin. Syst.* Diándria Monogýnia.

*Identification.* Tourn. Inst., 367.; Lin. Gen., No. 19.; Don's Mill., 4. p. 45.
*Synonymes.* Filaria, *Fr.*; Steinlinde, *Ger.*
*Derivation.* From *phullon*, a leaf; or from *Philyra*, the mother of Chiron, who was changed into a tree

*Gen. Char., &c.* *Calyx* small, tubular, 4-toothed, permanent. *Corolla* short, campanulate, rotate, 4-cleft, deciduous. *Stamens* a little exserted, with short filaments. *Style* simple. *Stigma* thickish. *Drupe* globose, containing a 2-celled nut; one of the cells usually abortive. *Seed* solitary in each cell. *Albumen* rather farinaceous or fleshy. (*Don's Mill.*)

*Leaves* simple, opposite, exstipulate, evergreen; mostly entire. *Flowers* in axillary racemes, greenish white. *Drupes* black, globose.

Shrubs or low trees, evergreen; natives of the South of Europe, and of some parts of Western Asia. In British gardens they have been in cultivation for nearly three centuries, they are all most desirable evergreen shrubs, on account of their shining dark green leaves, and the fragrance of their numerous white flowers. They are propagated by cuttings or layers, and will grow in any common garden soil. When raised from seeds, the berries should be prepared in a rot-heap like haws. By general observers, the phillyrea is frequently confounded with the alaternus; but the species of that genus have their leaves

placed alternately on their branches, whereas in the phillyrea they are opposi All the kinds in cultivation are nothing more than varieties of one species.

1. *P.* ME'DIA *L.* The intermediate, *or lance-leaved,* Phillyrea.

*Identification.* Lin. Sp., p. 10.; Don's Mill., 4. p. 45.
*Synonymes.* *P.* latifòlia var. ε mèdia *Lapeyr. Pl. Pyr.* p. 4.; *P.* ligustrifòlia *Mill. Dict.* No. 4.; *P.* læ'vis *Tenore Syll.* p. 9.; *P.* latifòlia var. A. ligustrifòlia *Poll. Pl. Ver.* 1. p. 7.
*Engravings.* Kerner, t. 774.; N. Du Ham., 2. t. 27.; and our *fig.* 1226.

1226. *P.* mèdia.

*Spec. Char., &c.* Leaves lanceolate, quite entire, or a little serrated in the middle, triple-nerved, veiny. (*Don's Mill.*) An evergreen shrub. South of Europe. Height 10 ft. to 15 ft. Introduced in 1597. Flowers greenish white; May and June. Berries black; ripe in October.

*Varieties.*

P. *m.* 2 *virgàta* Ait. Hort. Kew. 1. p. 11.—Leaves lanceolate. Branches erect.

P. *m.* 3 b*uxifòlia* Ait. Hort. Kew. 1. p. 11.—Leaves oval-oblong, bluntish.

2. *P.* (M.) ANGUSTIFO'LIA *L.* The narrow-leaved Phillyrea.

*Identification.* Lin. Sp., 1. p. 10.; Don's Mill., 4. p. 45.
*Synonymes.* *P.* obliqua *Tenore Syll.*, p. 9.; *P.* mèdia *Tenore Fl. Neap.* 3. p. 6.
*Engravings.* Lam. Ill. 8. 3.; and our *fig.* 1227.

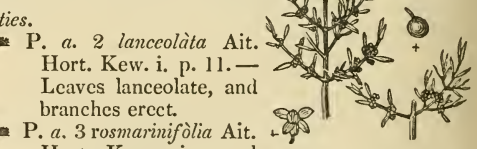
1227. *P.* (m.) angustifòlia.

*Spec. Char., &c.* Leaves linear-lanceolate, quite entire Branches beset with elevated dots. Leaves obsoletely veined. (*Don's Mill.*) An evergreen shrub. Italy and Spain. Height 8 ft. to 10 ft. Introduced in 1597. Flowers greenish white; May and June.

*Varieties.*

P. *a.* 2 *lanceolàta* Ait. Hort. Kew. i. p. 11.—Leaves lanceolate, and branches erect.

P. *a.* 3 r*osmarinifòlia* Ait. Hort. Kewensis; and our *fig.* 1228.—Leaves lanceolate-subulate, elongated. Branches straight.


1228. *P.* a. rosmarinifolia.

P. *a.* 4 *brachiàta* Ait. Hort. Kew. i. p. 11.—Leaves oblong-lanceolate shorter than in the other varieties. Branches divaricate.

3. *P.* (M.) LIGUSTRIFO'LIA *Ait.* The Privet-leaved Phillyrea.

*Identification.* Ait. Hort. Kew., 1. p. 11.; Don's Mill., 4. p. 45.
*Synonymes.* *P.* virgàta *Willd. Enum.* 1. p. 12.; *P.* mèdia var. A. *Willd. Sp.* 1. p. 42.; *P*hillyrea iii. *Clus. Hist.* p. 52.
*Engravings.* Lob. Icon., 2. p. 131.; and our *fig.* 1229.

1229. *P.* (m.) ligustrifòlia.

*Spec. Char., &c.* Leaves oblong-lanceolate, subserrated in the middle, obsoletely veined. Branches erect. (*Don's Mill.*) An evergreen shrub. Spain and the South of France. Height 10 ft. to 15 ft. Introduced in 1596. Flowers white; May and June.

4. *P.* (M.) PE'NDULA *Ait.* The drooping-*branched* Phillyrea.

*Identification.* Ait. Hort., Kew., 1. p. 11.; Don's Mill., 4. p. 45.
*Synonyme.* *P.* mèdia γ *Willd. Sp.* 1. p. 43.
*Engraving.* Our *fig.* 0000. in p. 0000.

*Spec. Char., &c.* Leaves oblong-lanceolate, acute, obsoletely serrated at the apex, veiny. Branches drooping (*Don's Mill.*) An evergreen shrub South

of Europe. Height 10 ft. to 15 ft. Introd. 1597. Flowers greenish white; May and June.

5. *P.* (M.) OLEÆFO'LIA *Ait.* The Olive-leaved Phillyrea.

*Identification.* Ait. Hort. Kew., 1. p. 11.; Don's Mill., 4. p. 46.
*Synonymes.* *P.* mèdia δ *Ait. Hort. Kew.* 1. p. 11.; *P.* racemòsa *Link Jahrb.* 1. p. 160.
*Engravings.* Pluk., t. 310. f. 1.; and our *fig.* 1230.

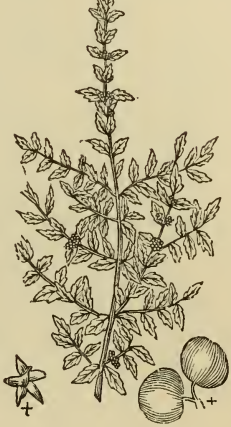
*Spec. Char., &c.* Leaves oblong-lanceolate, almost entire, obtuse, narrowed at the base, veiny. Branches erectish. (*Don's Mill.*) An evergreen shrub. South of Europe. Height 10 ft. to 15 ft. Introduced in 1597. Flowers greenish white; May and June.

1230. *P.* (m.) oleæfolia.

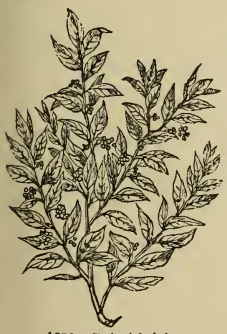
6. *P.* (M.) LATIFO'LIA *L.* The broad-leaved Phillyrea.

*Identification.* Lin. Sp., 10.; Don's Mill., 4. p. 46.
*Synonymes.* *P.* latifòlia β serràta *Poll. Fl. Ver.* 1. p. 7.; *P.* latifòlia β *Ten. Fl. Neap.* 3. p. 6.; *P.* spinòsa *Ten. Syll.* p. 9. No. 2.; *P.* latifòlia β spinòsa *Seg. Ver.* 2. p. 273.
*Engravings.* Smith Fl. Græc., t. 2.; and our *fig.* 1231.

*Spec. Char., &c.* Leaves ovate, rounded at the base, serrated, veiny. Young leaves sub-cordate at the base. (*Don's Mill.*) A low sub-evergreen tree; in England a shrub. South of Europe. Height 20 ft. to 30 ft. Introduced in 1597. Flowers greenish white; May and June.


1231. *P.* (m.) latifòlia.

7. *P.* (M.) LÆ'VIS *Ait.* The smooth Phillyrea.


1232. *P.* (m.) lævis

*Identification.* Ait. Hort. Kew., 1. p. 12.; Don's Mill., 4. p. 46.
*Synonymes.* *P.* latifòlia var. A. *Willd. Sp.* 1. p. 43.; *P.* latifòlia *Mill. Dict.* No. 1
*Engravings.* Du Ham. Arb., t. 125.; and our *fig.* 1232.

*Spec. Char., &c.* Leaves elliptic-oblong, almost entire, veiny, bluntish; an inch or more in length, a little narrowed at the base, blunt, and with a small mucro at the point. (*Don's Mill.*) An evergreen shrub. South of Europe and North of Africa. Height 10 ft. to 20 ft. Introduced in 1597. Flowers greenish white; May and June.

The leaves are smoother than those of any other variety.

8. *P.* (M.) OBLI'QUA *Ait.* The oblique-*leaved* Phillyrea.

1233. *P.* (m.) obliqua.

*Identification.* Ait. Hort. Kew., 1. p. 12.; Don's Mill., 4. p. 46.
*Synonymes.* *P.* latifòlia γ *Willd. Sp.* 1. p. 43.; *P.* foliàcea *Link Jahrb.* 1. p. 54.; Phillyrea ii. *Clus. Hist.* p. 52.
*Engraving.* Our *fig.* 1233.

*Spec. Char., &c.* Leaves lanceolate-oblong, serrated, acute at both ends, veiny, bent obliquely. Leaves like those of *Myrìca.* (*Don's Mill.*) An evergreen shrub. South of Europe. Height 10 ft. to 12 ft. Introduced in 1579. Flowers greenish white; May and June.

1234. *P.* (m. spinòsa

9. *P.* (M.) SPINO'SA *Mill.* The spiny, *or Holly-leaved,* Phillyrea.

*Identification.* Mill. Dict., No. 3.; Ait. Hort. Kew., 1. p. 12.; Don's Mill., 4. p. 46.

*Synonymes.* *P. ilicifòlia Willd. Enum.* 1. p. 13.; *P.* latifòlia β spinòsa *Willd. Sp.* 1. p. 43.; *P* latifòlia longifòlia *Link Jahrb.* 1. p. 54.; *Phillýrea* i. *Clus. Hist.* p. 51.
*Engravings.* Pluk. Phyt., t. 310. f. 4.; and our *fig.* 1234., from a specimen in the British Museum.

*Spec. Char., &c.* Leaves ovate-oblong, rounded at the base, acute, sharply and cuspidately serrated, glabrous, flat, veiny. (*Don's Mill.*) An evergreen shrub. South of Europe. Height 10 ft. to 20 ft. Introduced in 1597 Flowers greenish white; May and June.

## Genus III.



CHIONA'NTHUS *L.* The Snow-Flower, *or* *Fringe Tree.* *Lin. Syst.* Diándria Monogýnia.

*Identification.* Lin. Gen., No. 21.; Don's Mill., 4. p. 50.
*Synonymes.* Chionanthe, *Fr.*; Schneeblume, *Ger.*
*Derivation.* From *chiōn*, snow, and *anthos*, a flower; in reference to the snow-white flowers of the species.

*Gen. Char., &c.* *Calyx* small, 4-parted, or 4-toothed. *Corolla* with a short tube and a 4-parted limb; segments of the limb long and linear. *Style* hardly any. *Stigma* 2-lobed. *Anthers* almost sessile. *Drupe* baccate, containing a striated nut. *Seeds* albuminous. (*Don's Mill.*)

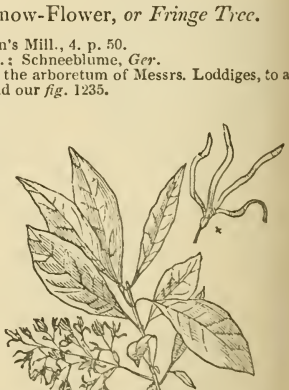
*Leaves* simple, exstipulate, deciduous; opposite, entire. *Flowers* in racemes, simple or compound, terminal or axillary, snow-white.—Trees or low shrubs, natives of North America.

This genus differs from *O*'lea, principally in the figure of the segments of the corolla, and in its leaves being deciduous. The only hardy species is a shrub or low tree, a native of North America.

♃ ♆ 1. C. virgi'nica *L.* The Virginian Snow-Flower, *or* *Fringe Tree.*

*Identification.* Lin. Sp., p. 11.; Pursh Sept., 1. p. 7.; Don's Mill., 4. p. 50.
*Synonymes.* Snowdrop Tree, *Amer.*; Arbre de Neige, *Fr.*; Schneeblume, *Ger.*
*Engravings.* Bot. Cab., t. 1204.; the portrait of a plant in the arboretum of Messrs. Loddiges, to a scale of 1 in. to 4 ft.; in Arb. Brit., 1st edit., p. 1206.; and our *fig.* 1235.

*Spec. Char., &c.* Racemes terminal. Peduncles 3-flowered. Flowers pedicellate. Leaves lanceolate, glabrous, resembling those of a deciduous magnolia. Drupe purplish. (*Don's Mill.*) A large deciduous shrub or low tree. Pennsylvania and Carolina, in boggy woods. Height 10 ft. to 30 ft. Introduced in 1796. Flowers white; May to July.



1235. C. virginica.

*Varieties.*

♃ ♆ *C. v.* 2 *latifòlia* Catesb. Car. t. 69., *Kern. Abbild.* t. 607. C. v. montàna *Pursh Sept.* 1. p. 8.—Has the leaves oval-lanceolate, coriaceous, glabrous; panicles dense; drupes oval. Carolina. Introduced in 1736.

♃ ♆ *C. v.* 3 *angustifòlia* Ait. Hort. Kew. ed. 2. vol. i. p. 23. C. trífida *Mœnch.*—Has the leaves lanceolate and glabrous. Horticultural Society's Garden.

♃ ♆ *C. v.* 4 *marítima* Pursh Fl. Amer. Sept. i. p. 8. C. marítima *Lodd. Cat.* ed. 1836.—A native of North America, in boggy woods by the sea side; having the leaves obovate-lanceolate, membranous, and pubescent; the panicles very loose; and the drupes elliptic.

It requires to be grown in moist soil, either sandy peat or sandy loam, and in a sheltered situation. It may be propagated by layers; but as seeds are easily imported from America, and as the plant does not root very readily, that mode is not often adopted. It may also be propagated by grafting on the common ash.

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*O'LEA.*—Though most of the species of this genus are too tender to stand the open air in Britain, yet there is one variety of the common olive, obtained from Nikita in the Crimea, which has lived through the winter of 1837–8, as a standard, in the Horticultural Society's Garden, and *O.* americàna *L.* (*fig.* 1236.) has lived against a wall at Messrs. Loddiges. This tree is the devil-wood of the Americans, a native of the southern states, as far north as Norfolk in Virginia. It is sometimes found as high as 30 or 35 feet; but its ordinary height is 10 or 12 feet. The leaves are 4 or 5 inches long, of a shining light green; and they remain on two or three years. The flowers are very small, of a pale yellow, and strongly scented; appearing about the end of April. The fruit is round, about twice the size of the common pea; and, when ripe, of a purple colour, approaching to blue. It ripens in America in October, and remains attached to the tree during a great part of the winter, forming a fine contrast to the foliage.

1236. *O'lea americàna.*

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## Sect. II. *SYRI'NGEÆ.*

### Genus IV.

*SYRI'NGA* L. The Lilac. *Lin. Syst.* Diándria Monogýnia.

*Identification.* Lin. Gen., No. 22.; Don's Mill., 4. p. 51.
*Synonymes.* *Lilac* Tourn. Inst. t. 372., Juss. Gen. p. 105.; Lilas, *Fr.*; Flieder, *Ger.*; Lilaco, *Ital.*
*Derivation.* From *sirinx*, the native name in Barbary. The tubes of the finest Turkish pipes are manufactured from the wood of this shrub; and also from that of the *P*hiladélphus coronàrius, to which the name was originally given. Hence the old English name of Pipe Tree, which was applied both to the *P*hiladélphus and the *Syringa*. Lilac is from *lilac*, or *lilag*, the Persian word for a flower.

*Gen. Char., &c.* *Calyx* small, 4-toothed. *Corolla* funnel-shaped, with a 4-parted limb. *Stamens* 2, enclosed. *Stigma* trifid. *Capsule* ovate, compressed, 2-celled, 2-valved, 2-seeded; valves navicular, with a narrow dissepiment in the middle. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous; entire. *Flowers* in thyrsoid terminal panicles, oppositely branched, purple or white. — Shrubs or low trees; natives of Europe or Asia.

Highly valued in the gardens of temperate climates for the beauty and fragrance of their flowers, and the profusion in which these are produced in spring. The natural mode of propagating is by suckers, which all the species produce in abundance; and they will all grow in any common soil. All the species may be grafted on the ash (See *Gard. Mag.*, 1840, p. 37.)

### 1. *S.* VULGA'RIS *L.* The common Lilac.

*Identification.* Lin. Sp., 11.; Don's Mill., 4. p. 51.
*Synonymes.* *Lilac* vulgàris *Gærtn*; Pipe Privet, or Pipe Tree; Lilas commun, *Fr.*; gemeiner Flieder, *Ger.*; Lilla, or Lilac turco, *Ital.*
*Engravings.* Lam. Ill., t. 7.; Schmidt Baum., t. 77.; N. Du. Ham., t. 61.

*Spec. Char., &c.* Leaves ovate-cordate, acuminated. (*Don's Mill.*) A deciduous shrub. Persia and Hungary, on chalky precipices in the Çverna valley, and Mount Domoglet, as well as on the whole group of rocks along the Danube. Height 8 ft. to 10 ft. Introduced in 1597. Flowers purple or white; May. Fruit brown; ripe in September.

*Varieties.*

- S. *v.* 1 *cærùlea* Clus. Hist. i. p. 56, Krause t. 26., and our *fig.* 1238. — Flowers blue. There is a subvariety with the leaves imperfectly variegated.
- S. *v.* 2 *violàcea* Curt. Bot. Mag. t. 183., and our *fig.* 1237. — Flowers purple. The Scotch Lilac, so called, because it was first recorded in Sutherland's *Catalogue of the Edinburgh Botanic Garden.*
- S. *v.* 3 *álba.* — Flowers white. This variety flowers earliest.
- S. *v.* 4 *álba màjor* Lodd. Cat. ed. 1836. — Flowers larger than those of the previous variety.
- S. *v.* 5 *álba plèna. S.* plèna *Lod. Cat.*—Flowers double.
- S *v.* 6 *rùbra* Lodd. Cat. — Flowers red
- S. *v.* 7 *rùbra màjor* Lodd. Cat. ed. 1836, the Lilas de Marly of the French gardeners, has flowers larger than the parent variety.

1237 *S.* v. violàcea.

*Other Varieties.* A number of plants have been raised from seed by Mr. Williams of Pitmaston, of which there are six sorts, tolerably distinct, in the Horticultural Society's Garden. The French nurserymen are also in possession of some new seedlings; but none of all that we have observed are so well deserving of culture as the common blue, the violet, the red, and the white.

The common lilac grows to the height of 20 ft. and upwards in good free soil; and, though it naturally sends up abundance of suckers in every direction, so as to form a dense mass of stems, yet, when these are cleared away as they appear, and only one stem left, it may be trained to form a very handsome small tree, beautiful when in leaf, and preeminently so when in flower. The rate of growth is considerable, varying, according to the soil and situation, from 18 in. to 3 ft. in a year, for the first three or four years. The duration is not great; probably between twenty and thirty years in rich soils, and between forty and fifty in such as are dry and comparatively poor. Plants which are never allowed to produce suckers of any size, and in which the bunches of flowers have been thinned out, ripen seeds; and these, according to Miller, produced plants which are true to their varieties. In some parts of Britain, and various parts of Germany, it is mixed with other shrubs, or planted alone, to form garden hedges; and, as a proof of its hardiness, we may mention that there are hedges of it by the roadsides, in the neighbourhood of Ulm and Augsburg, in the elevated, and consequently cold, region of Bavaria. Mixed with sweet briars, sloe thorns, scarlet thorns, Guelder rose

1238. *S.* v. cærùlea.

trees, &c., it forms beautiful hedges to cottage gardens, where there is abundance of room.

### ✻ 2. *S.* JOSIKÆ'*A* Jacq. Josika's Lilac.

*Identification.* Jacq. in Bot. Zeit., 1831, t. 67.; Don's Mill., 4. p. 51.
*Engravings.* Bot. Mag., t. 3278.; Bot. Reg., t. 1733.; Botanist, t. 24.; and our *figs.* 1239. and 1240.

1239. *S.* Josikæ'a.

*Spec. Char., &c.* Leaves elliptic-lanceolate, acute, ciliated, wrinkled, glabrous, on short petioles, white beneath. Flowers purple. (*Don's Mill.*) An upright deciduous shrub. Transylvania, in shady places near water. Height 6 ft. to 12 ft. Introd. in 1835. Flowers purple; May. Naked young wood purplish green.

1240. *S.* Josikæ'a.

### ✻ 3. *S.* PE'RSICA *L.* The Persian Lilac.

*Identification.* Lin. Sp., 11.; Don's Mill., 4. p. 51.
*Synonymes.* *Lilac* minor *Mœnch*; *Lilac* pérsica *Lam.*; Lilas de Perse, *Fr.*; Lilac di Persia, *Ital.*
*Engravings.* Bot. Mag., t. 486.; and our *fig.* 1242.

*Spec. Char., &c.* Leaves small, lanceolate, entire. Flowers purple. (*Don's Mill.*) A deciduous shrub. Persia. Height 4 ft. to 6 ft. Introduced in 1640. Flowers purple; May and June.

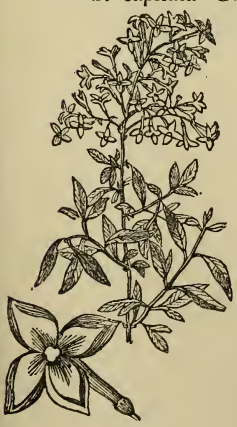
1241. *S.* p. laciniàta.

*Varieties.*

✻ S. *p.* 2 *álba* Lodd. Cat. ed. 1836.—Leaves lanceolate, entire. Flowers white.

✻ S. *p.* 3 *laciniàta* Lodd. Cat. ed. 1836, Bot. Cab. 1107., and our *fig.* 1241. *S.* capitàta *Gmel. Itin.* iii. p. 304. t. 32. f. 1., *Schmidt. Baum.* ii. p. 79.; Lilas à Feuilles de Persil, *Fr.* — This variety has some of its leaves pinnatifidly cut, and nearly all of them cut in some manner.

✻ S. *p.* 4 *salvifòlia* Lodd. Cat. ed. 1836 has the leaves somewhat hoary, like those of the common sage.


1242. *S.* pérsica.

One of the most common, and, at the same time, one of the most ornamental, of our low deciduous shrubs. It is frequently planted in pots, and forced so as to come into flower at Christmas. In Paris, it is said, they retard the Persian lilacs, by placing them in an icehouse in December, and keeping them there till the September or October following, when they will come into bloom without the aid of artificial heat about Christmas. (See *Gard. Mag.*, vii. p. 247.) Layers and suckers, which are produced in great abundance in any common garden soil.

### ✻ 4. *S.* ROTHOMAGE'NSIS. The Rouen Lilac.

*Synonymes.* *S.* dùbia *Pers. Ench.* 1. p. 9.; *Lilàccum* rothomagénse *Renault Fl. de l'Orne* p. 100.

*S.* mèdia *Dum. Cours.* 1. p. 709.; Lilas Varin *N. Du Ham.*; *S.* chinénsis *Willd. Sp.* 1. p. 48., *Don's Mill.* 4. p. 51.; *S.* sibírica *Hort.*; the Siberian Lilac *Hort. Engravings.* N. Du Ham., 2. t. 63.; and our *fig.* 1243.

*Spec. Char., &c.* Leaves ovate-lanceolate. Flowers purple. (*Don's Mill.*) An intermediate plant between *S.* vulgàris and *S.* pérsica. A shrub, from 6 ft. to 8 ft. high; a hybrid between *S.* vulgàris and *S.* pérsica; raised at Rouen by M. Varin, the director of the Botanic Garden there. Introduced in 1795. Flowers purple; May and June.

1243. *S.* rothomagénsis.

*Varieties.*

- S. *r.* 2 Lilas Royal *Bon Jardin.* 1836, has the flowers more compact than the species.
- S. *r.* 3 saugeàna *Hort.*; Lilas saugé, *Fr.*; differs from the Lilas Varin in having the flowers more red and more beautiful. *S.* coccínea and *S.* chinénsis rùbra *Lodd. Cat.* ed. 1836 appear to be identical with this variety, or very slightly different.

It is of very vigorous growth, and a most abundant flowerer; and, in favourable soils and situations, it will attain the height of 10 or 12 feet.

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S. Emòdi *Wall. Cat.* No. 2831., *Don's Mill.* iv. p. 51., *Royle Illust.* p. 267. t. 65. f. 2., and our *fig.* 1244., has the leaves elliptic-oblong, glaucous beneath, attenuated at the base, and acuminated at the apex. Branches warted. Thyrse terminal and panicled. Capsules almost cylindrical. The bud-scales permanent at the base of the year's shoots. A shrub, 8 ft. to 10 ft. high, native of Kamaon, towards the Himalayas, with purple flowers. This very ornamental and desirable plant has lately been raised in the H. S. Gardens from seeds received from the Himalayas.

1244. *S.* Emòdi.

## Genus V.

FONTANE'S*IA* Labill. The Fontanesia. *Lin. Syst.* Diándria Monogýnia.

*Identification.* Labill. Pl. Syr., dec. 1. p. 9. t. 1.; Don's Mill., 4. p. 51.
*Derivation.* Named after *René Louiche Des Fontaines*, author of *Flora Atlantica*, 2 vols. 4to, Paris, 1798-99, and several other works.

*Gen. Char., &c* *Calyx* 4—6-parted, permanent. *Corolla* 4—6-parted, deciduous. *Stamens* 2, elongated. *Stigma* bifid, hooked. *Capsule* a 2—4-winged, 2-celled, papery, indehiscent samara; cells 1-seeded. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, sub-evergreen; lanceolate. *Flowers* in axillary racemes, whitish yellow. — Shrubs with the habit of *P*hillýrea mèdia, natives of Asia, and forming a connecting link between *F*raxinièæ and *O*lèinæ. Layers, in common soil.

1 F. PHILLYREÖI'DES *Labill.* The Phillyrea-like Fontanesia.

*Identification.* Labill. Syr., dec. 1. p. 9. t. 1.; Don's Mill., 4. p. 51.
*Engravings.* Bot. Cab., t. 1308.; and our *fig.* 1245.

*Spec. Char., &c.* See Gen. Char. A sub-evergreen shrub or low tree. Syria between Laodicea and Mount Cassius, and Sicily. Height 10 ft. to 14 ft. Introduced in 1787. Flowers greenish white, turning to brownish yellow; June, and remaining on the tree two or three months.

Readily propagated by layers, by cuttings, or by grafting on the common privet. Grafted standard high on the ash, it would form a very handsome drooping-branched tree.

1245. F. phillyreöides.

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## Sect. III. FRAXINIE'Æ.

### GENUS VI.

### FRA'XINUS *Tourn.* THE ASH. *Lin. Syst.* Polygàmia Diœ'cia.

*Identification.* Tourn. Inst., 343.; Lin. Gen., No. 1160.; Don's Mill., 4. p. 53.
*Synonymes.* Frène, *Fr.*; Esche, *Ger.*; Frassino, *Ital.*
*Derivation.* The derivation of Fráxinus given in Don's *Miller* is, from *phrassō*, to enclose; the ash having been formerly used for making hedges. Linnæus derives it from *phraxis*, a separation, because the wood splits easily. Others derive it from *frangitur*, because the young branches are easily broken; or which may have been applied ironically, in allusion to the extreme toughness of the old wood. None of these derivations, however, appears very satisfactory. The English name of Ash may be derived either from the Saxon word *æse*, a pike; or from the colour of the bark of the trunk and branches, which resembles that of wood ashes.

*Gen. Char., &c.* *Flowers* polygamous. *Calyx* none, or 4-parted, or 4-toothed. *Corolla* none. *Stamens* 2, in the male flowers. *Anthers* sessile, or on short filaments, dehiscing outwardly. *Female flowers* the same, except that they have no stamens, but have each a pistil that has a bifid stigma. *Fruit*, or samara, 2-celled, compressed, winged at top. *Cells* 1-seeded. (*Don's Mill.*)

*Leaves* compound, opposite, exstipulate, deciduous; unequally pinnate. *Flowers* in lateral racemes, greenish yellow. *Fruit*, or samara, 2-celled, compressed, winged at top.—Trees; natives of Europe, part of Asia, and North America.

The species are raised from seeds; and the varieties chiefly by grafting on Fráxinus excélsior, but partly also from seeds. There is a great tendency in all the species to sport into varieties; and many of what are by botanists described as species are, in our opinion, not entitled to that distinction. All the ashes are of easy culture in good soil, and in a sheltered situation. The European ash is one of our most valuable timber trees, as is the American ash in North America.

A. *Leaflets broad, smooth or shining on the upper surface. Natives of Europe.*

1. *F.* EXCE'LSIOR *L.* The taller, *or common*, Ash.

*Identification.* Lin. Sp., p. 1509.; Don's Mill., 4. p. 53.
*Synonymes.* *F.* apétala *Lam. Ill.* t. 858. f. 1.; *F.* rostràta *Guss. Fl. Rar.* p. 374.; *F.* O'rnus *Scop. Carn.* No. 1249.; *F.* eròsa *Pers.*; *F.* críspa *Bosc*; le Frène, *Fr.*; Aesche or Esche, *Ger.* and *Dutch*; Ask, *Dan.* and *Swed.*; Frassino, *Ital.*; Fresno, *Span.*; Freixo, *Port.*; Jas, Jasen, or Jassen, *Russ.*; Æse, *Sax.*
*Engravings.* Eng. Bot., t. 1692.; the plates in Arb. Brit., 1st. edit., vol. vi.; and our *fig.* 1246.

*Spec. Char., &c.* Leaflets almost sessile, lanceolate-oblong, acuminate, serrated, cuneated at the base. Flowers naked. Samara obliquely emarginate at the apex. The leaves have generally 5 pairs of leaflets, but sometimes 6.

The flowers are produced in loose spikes, from the sides of the branches. On some there are only female flowers ; on others, hermaphrodite ones ; and on others, male ones ; while on some trees the flowers are found in two of these states, or in all of them. (*Don's Mill.*) A large deciduous tree. Europe. Height 30 ft. to 80 ft. Flowers greenish yellow ; March and April, before the leaves appear. Samara brown ; ripe in October. Decaying leaves brown and yellow. Naked young wood ash grey.

124c. *F.* excélsior.

*Varieties.* These are very numerous ; we shall give first those which are allowed to be varieties by botanists, and afterwards indicate those which are treated by botanists as species, and which we have accordingly kept distinct, but which we are decidedly of opinion are nothing more than varieties.

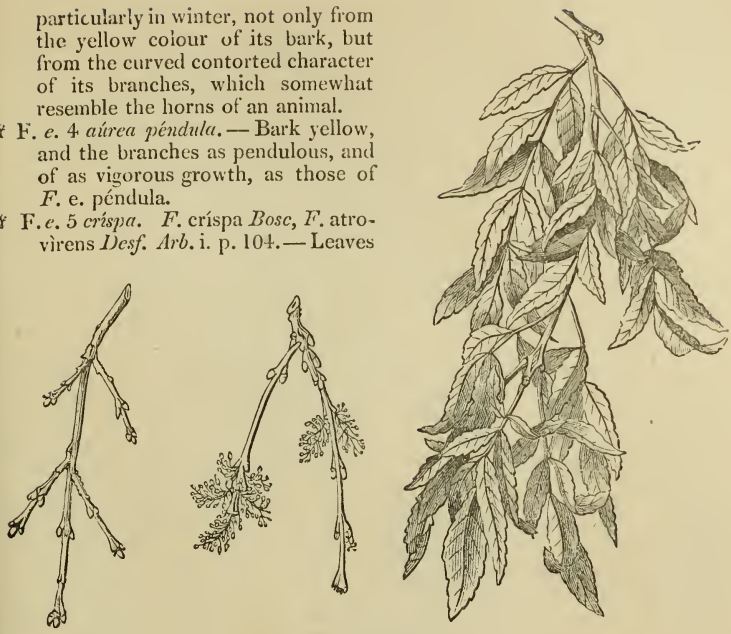
ϒ F. *c.* 2 *péndula* Ait. Hort. Kew. ed. 2. vol. v. p. 475., Lodd. Cat. ed 1836 ; Frêne Parasol, *Fr.* ; the plate in Arb. Brit. 1st. edit. vol. vi., and our *fig.* 1247. — Branches pendulous. Discovered, about 1750, at Gamlingay, Cambridgeshire ; and subsequently in a wood in Argyllshire. (See *Gard. Mag.*, vol. xiv. p. 124.)

ϒ F. *c.* 3 *aúrea* Willd. Enum. p. 1059. *F.* aúrea *Pers. Ench.* ii. p. 604., *Lodd. Cat.* ed. 1836. — Bark of the trunk and branches yellow and dotted ; and the leaflets sessile, lanceolate, unequally serrated, acuminated, cuneated at the base, and glabrous. It is conspicuous,

particularly in winter, not only from the yellow colour of its bark, but from the curved contorted character of its branches, which somewhat resemble the horns of an animal.

♈ F. *e.* 4 *aúrea péndula.* — Bark yellow, and the branches as pendulous, and of as vigorous growth, as those of *F.* e. péndula.

♈ F. *e.* 5 *críspa.* *F.* críspa *Bosc*, *F.* atrovìrens *Desf. Arb.* i. p. 104. — Leaves



1247. *F.* e. péndula.

dark green, crumpled, and curled. The darkness of the green of the leaves is remarkable; and this and their crumpled appearance, combined with the rigid stunted character of the whole plant, render it a strikingly grotesque object.

♈ F. *e.* 6 *jaspídea* Willd., Lodd. Cat. ed. 1836. — Bark of the trunk and branches streaked with reddish white.

♈ F. *e.* 7 *purpuráscens* Descemet (*F.* purpùrea *Hort.*). — Bark purple. Horticultural Society's Garden.

♈ F. *e.* 8 *argéntea* Desf. Arb., Lodd. Cat. ed. 1836. — Leaves variegated with white.

♈ F. *e.* 9 *lùtea.* — Leaflets edged with yellow.

♈ F. *e.* 10 *eròsa* Pers. Ench. i. p. 604. — Leaflets erosely toothed.

♈ F. *e.* 11 *horizontàlis* Desf., Pers. Ench. i. p. 604., Lodd. Cat. ed. 1836. —Branches spreading horizontally.

♈ F. *e.* 12 *verrucòsa* Desf., Pers. Ench. i. p. 604., Lodd. Cat. ed. 1836.— Branches warted.

♈ F. *e.* 13 *verrucòsa péndula.* — Branches warted and pendulous. Horticultural Society's Garden.

♈ F. *e.* 14 *nàna* Lod. Cat. ed. 1836. *F.* e. hùmilis, and *F.* Theophrasti Hort. — The leaves resemble those of the common ash, but the leaflets are much smaller and closer together, and the plant seldom exceeds 3 ft. in hèight.

♈ F. *e.* 15 *fungòsa* Lodd. Cat. ed. 1836.—Bark fungous-like.

♈ F. *e.* 16 *verticillàta* Lodd. Cat. ed. 1836.—Leaves whorled.

♈ F. *e.* 17 *villòsa nòva* Descemet.—Leaves villous.

*Other Varieties.* There are several in the *Catalogue* of Messrs. Loddiges, and in other collections, but we do not think them worth enumerating.

The common ash is one of the noblest of our forest trees, attaining a height of from 80 ft. to 100 ft., and enduring several centuries. No deciduous tree

whatever, in cultivation in British plantations, is more injurious to plants growing under it, from its numerous fibrous roots, which, rising close to the surface, exhaust the soil, and prevent the vegetation of almost every other plant, except those that have also fibrous roots. It always grows best in good, somewhat calcareous soil; which, though not boggy, is generally adjoining water. The most profitable age for felling the ash appears to be from 80 to 100 years, but it will continue pushing from stools or from pollards, for above 100 years. The timber of the ash is very elastic; so much so, that a joist of this timber will bear more before it breaks than one of that of any other tree indigenous to Europe. It weighs, per cubic foot, 64 lb. 9 oz. when green, and 49 lb. 8 oz. when dry. The value of the timber is increased by the rapidity of its growth; and, as in the case of the sweet chestnut, the wood of young trees is more esteemed than that of old ones. Since the use of iron became so general in the manufacture of instruments and machines, the value of the ash is somewhat diminished, at least in Britain; it still, however, ranks next in value to that of the oak, and is held even to surpass it for some purposes. It is much in use by the coachmaker, the wheelwright, and the manufacturer of agricultural implements. It is highly valued for kitchen tables and steps of stairs, as it may be scoured better than any other wood, and is not so liable to run splinters into the scourer's fingers. Young ash is particularly valuable for hop-poles, hoops, crates, handles to baskets, rods for training plants, forming bowers, for light hurdles, and for wattling fences; and also for walkingsticks. The species is always propagated by seeds, and the varieties by grafting. The samaras, or keys, are generally ripe in October; when they should be gathered, and taken to the rotting-ground, where they should be mixed with light sandy earth, and laid in a heap of a flat form, not more than 10 in. thick, in order to prevent them from heating. Here they should be turned over several times in the course of the winter; and in February they may be removed, freed from the sand by sifting, and sown in beds in any middling soil. The richness or quality of the soil is of little consequence; but it should be well broken by the rake, and the situation should be open, to prevent the plants from being drawn up too slender. The seeds may be deposited at the distance of half an inch every way, and covered a quarter of an inch with soil. Sown in February they will come up in May or June.

### ♃ 2. *F.* (E.) HETEROPHY'LLA *Vahl.* The various-leaved Ash.

*Identification.* Vahl Enum., 1. p. 53.; Don's Mill., 4. p. 54.
*Synonymes.* *F.* simplicifòlia *Willd. Sp.* 4. p. 1098.; *F.* monophýlla *Desf. Arb.* 1. p. 102.; *F.* simplicifòlia *Hort.*; *F.* excélsior β diversifòlia *Ait.*; *F.* excélsior var. ε *Lam. Dict.* 2. p. 554.; *F.* excélsior β heterophýlla *Dec.*; *F.* integrifòlia and diversifòlia *Hort.*
*Engravings.* Eng. Bot., t. 2476.; the plate of this tree in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 1249.

*Spec. Char., &c.* Leaves simple or trifoliate, dentately serrated. Samara oblong-lanceolate, 1 in. long, obtuse and emarginate at the apex. Leaves usually simple, but sometimes with 3 or 5 leaflets 3—4 in. long, ovate, subcordate, or acuminate at the base and apex. Branche dotted. Buds black. (*Don's Mill.*) A tree, attaining nearly the same dimensions as the common ash, and without doubt only a variety of it.

1248. *F.* (e.) h. variegata.

1249. *F.* (e.) heterophylla.

*Variety.*

ϟ F. (*e.*) *h.* 2 *variegàta.* (*fig.* 1248.)—Leaves variegated; discovered in 1830, at Eglantine, near Hillsborough in, the county of Down, in Ireland.

ϟ 3. *F.* (E.) ANGUSTIFO'LIA *Bauh.* The narrow-leaved Ash.

*Identification.* Bauh. Hist., 1. pt. 2. p. 177.; Vahl Enum., 1. p. 52.; Willd. Sp., 4. p. 1100.; Don's Mill., 4. p. 55.
*Synonyme.* *F.* salicifòlia *Hort.*
*Engraving.* Our *fig.* 1250.

*Spec. Char., &c.* Leaflets sessile, lanceolate, remotely denticulated. Samaras in 3—4 pairs, from 1½ in. to 2 in. long, lanceolate, entire at the apex and acute, obtuse at the base. Branchlets green, dotted with white. Buds brown. Peduncles below the leaves, solitary, 2 in. long. Flowers naked. (*Don's Mill.*) A tree. Spain. Height 30 ft. to 50 ft. Introduced ? in 1815. Flowers greenish white. Hort. Soc. Garden, and Lod.

1250. *F.* (e.) angustifòlia.

B. *Leaflets small, smooth or shining above. Natives of the South of Europe, the North of Africa, or the West of Asia.*

ϟ 4. *F.* PARVIFO'LIA *Willd.* The small-leaved Ash.

*Identification.* Willd. Sp., 1. p. 1101.; Tenore Syll., p. 9. No. 5.; Don's Mill., 4. p. 54.

*Engravings.* Willd. Berl. Baumz., p. 155. t. 2. f. 2. ; the plate in Arb. Brit., 1st. edit., vol. vi. ; and our *fig.* 1251.

1251. *F.* parvifólia.

*Spec. Char., &c.* Leaflets 5—7 pairs, sessile, roundish ovate and oblong, attenuated at the base ; quite entire at the base, but sharply serrated at the apex, mucronate. Flowers naked. Branches purplish, trigonal at the top. (*Don's Mill.*) A deciduous tree. Levant. Height 30 ft. to 40 ft. Introd. 1822. Flowers greenish yellow ; April and May. Samara smaller than those of the common ash ; ripe in October. Hort. Soc. Garden, and Lod.

♆ 5. *F.* (p.) ARGE'NTEA *Lois.* The silvery-*leaved* Ash.

*Identification.* Lois. Fl. Gall., 697. ; Don's Mill., 4. p. 54.
*Engraving.* Our *fig.* 2098. in p. 1108.

*Spec. Char., &c.* Leaves with usually 3 pairs of rather coriaceous, elliptic, ovate, shortly cuspidate, bluntly toothed leaflets, on short petiolules. Leaves silvery grey. (*Don's Mill.*) A deciduous tree. Corsica, in the fissures of rocks. Height 30 ft. to 40 ft. Introduced in 1835. Flowers greenish yellow ; April and May.

This variety must not be confounded with *F.* e. fóliis argénteis, which is merely a variegation of the common ash (*F.* excélsior).

1252. *F.* (p.) oxycárpa.

♆ 6. *F.* (p.) OXYCA'RPA *Willd.* The sharp-fruited Ash.

*Identification.* Willd. Sp., 4. p. 1100. ; Don's Mill., 4. p. 55.
*Synonymes.* *F.* oxyphýlla *Bieb. Fl. Taur.* 2. p. 450. ; *F. O'*rnus *Pall. Itin. Taur.*
*Engraving.* Our *fig.* 1252. from a living specimen.

*Spec. Char., &c.* Leaflets 2—3 pairs, almost sessile, lanceolate, acuminated, serrated, glabrous. Flowers naked. Samara lanceolate, attenuated at both ends, mucronate. Branchlets green, with white dots. Buds brown. (*Don's*

*Mill.*) A deciduous tree. Caucasus. Height 30 ft. to 40 ft. Introduced in 1815. Flowers greenish yellow; May.

Of all the varieties of the small-leaved ash, this appears to us to be the most beautiful. The leaves are of a dark glossy green, and are produced in tufts at the ends of the branches.

ϒ 7. *F.* PA'LLIDA *Bosc.* The pale-*barked* Ash.

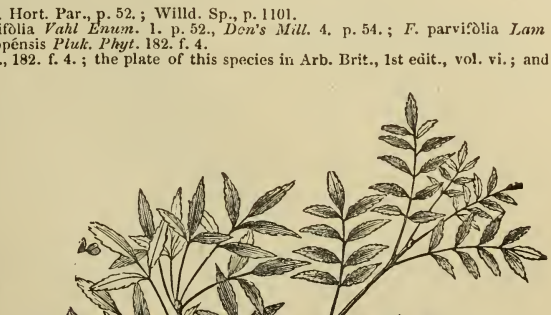
*Identification.* Bosc ex Spreng. Syst., 1. p. 96.; Don's Mill., 4. p. 56.
*Engraving.* Our *fig.* 2099. in p. 1109.

*Spec. Char., &c.* Leaves with 3 pairs of glabrous, almost sessile, ovate-lanceolate, toothed leaflets. Branches yellow. (*Don's Mill.*) In Don's *Miller* this kind is stated to be a native of North America; but in the Horticultural Society's Garden, and in the arboretum of Messrs. Loddiges, the plants to which this name is affixed obviously belong to *F.* excélsior.

ϒ 8. *F.* LENTISCIFO`LIA *Desf.* The Lentiscus-leaved Ash.

*Identification.* Desf. Cat. Hort. Par., p. 52.; Willd. Sp., p. 1101.
*Synonymes.* *F. tamariscifòlia Vahl Enum.* 1. p. 52., *Don's Mill.* 4. p. 54.; *F.* parvifòlia *Lam Dict.* 2. p. 540.; *F.* aleppénsis *Pluk. Phyt.* 182. f. 4.
*Engravings.* Pluk. Phyt., 182. f. 4.; the plate of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 1253.

*Spec. Charac., &c.* Leaflets petiolate, oblong and lanceolate, sharply serrated, the serratures mucronate; 4—5 pairs according to Vahl; 6—7 pairs according to Willd.; ½ in. long, terminal one smaller than the lateral ones. Branches dark purple. Buds brown. Flowers naked. Samara narrow, gradually widening to the apex, and retuse there. (*Don's Mill.*) A deciduous tree. Aleppo. Height 30 ft. to 50 ft. Introduced in 1710. Flowers greenish yellow; May and June.



1253. *F lentiscifòlia.*

*Variety.*

ϒ F. l. 2 *péndula* has slender pendulous branches, and forms a very elegant tree. Introduced in 1833. Hort. Soc. Garden, and Lod.

C. *Leaves and Leaflets large, glaucous, and downy beneath. Natives exclusively of North America; and, in Britain, chiefly to be considered as ornamental trees.*

From carefully observing all the kinds of American ash in the Horticultural Society's Garden, and in the arboretum of Messrs. Loddiges, we are convinced they are all variations of one and the same species. The most distinct of these, as far as respects the leaves, appear to be *F.* a. pubéscens and *F.* a. *juglandifòlia*; and, as far as respects the shoots, *F.* a. quadrangu-

làta. Seeds of the eight following kinds are annually imported from America by the London seedsmen, and the plants, in general, come up tolerably true. This may also be said of some of the varieties of which we have only given the names.

### ♃ 9. *F.* AMERICA'NA *Willd.* The American Ash.

*Identification.* Willd. Sp., 4. p. 1102.; Michx. N. Amer. Syl., 3. p. 59.
*Synonymes.* *F.* acuminàta *Lam.*, *Don's Mill.* 4. p. 56., *Pursh Sept.* 2. p. 9.; *F.* díscolor *Muhl.*; white Ash, green Ash, *Amer.*
*Engravings.* Michx. N. Amer. Syl., 3. t. 118.; the plate of this species in Arb. Brit., 1st edit.; and our *figs.* 1254. and 1255.

1254. *F.* americàna.

*Spec. Char., &c.* Leaflets 7, petiolate, oblong, acuminate, shining above, quite entire, glaucous beneath. Flowers calyculate. (*Don's Mill.*) A deciduous tree. Canada to Carolina, in woods. Height 60 ft. to 80 ft. Introduced in 1723. Flowers greenish yellow; May. Samaras rarely produced.

*Variety.*
♃ F. *a.* 2 *latifòlia* has broader leaves than the species. Hort. Soc. Garden, in 1835.

Early in spring, the leaflets are covered with a light down, which gradually disappears, till, at the approach of summer, they are perfectly smooth, of a light green colour above, and whitish beneath. This difference in the colour of the surfaces of the leaflets is peculiar to this species; and hence it has been named *F.* díscolor. It is also called the white ash from the colour of its bark, by which it is easily distinguished, in America, from the other sorts indigenous there. In Britain, all sorts of American ash are readily known from *F*ráxinus excélsior, by their lighter bark, and by the paler green of their leaves.

1255. *F.* americana.

### ♃ 10. *F.* (A.) PUBE'SCENS *Walt.* The downy Ash.

*Identification.* Walt. Fl. Car., p. 254.; Pursh Sept., 2. p. 9.; Don's Mill., 4. p. 55.
*Synonymes.* *F.* nigra *Du Roi Harbk.* ed. 2. vol. 1. p. 398.; *F.* tomentòsa *Michx. N. Amer. Syl.* 3 p. 63.; red Ash, black Ash, *Amer.*
*Engravings.* Michx. N. Amer. Syl., 3. t. 119.; and our *fig.* 1256.

*Spec. Char., &c.* Leaflets 3—4 pairs, petiolate, elliptic-ovate, serrated, downy or tomentose beneath, as well as the petioles and branches. Flowers calyculate. Racemes rather compound. Calyx campanulate. Samara narrow, lanceolate, obtuse, with a short mucro at the apex, 2 in. long. Stamens 2—3—4. (*Don's Mill.*) A deciduous tree. North America. Height 30 ft. Introduced in 1811. Flowers greenish yellow; May.

1256. *F.* (a.) pubéscens.

Though Michaux has described the leaflets as denticulated, yet in his figure, of which *fig.* 1256. is a reduced copy, they are perfectly entire, as they are for the most part in the living plants at Messrs. Loddiges.

*Varieties.*

♆ F. (*a.*) *p.* 2 *longifòlia* Willd. Sp. iv. p. 1103., Pursh Fl. Amer. Sept. i. p. 9., Lodd. Cat. ed. 1836; *F.* pennsylvánica *Marsh.*; has the leaflets ovate-lanceolate, attenuated, somewhat serrated.

♆ F. (*a.*) *p.* 3 *latifòlia* Willd., Pursh Fl. Amer. Sept. i. p. 9., has the leaflets ovate, broad.

♆ F. (*a.*) *p.* 4 *subpubéscens* Pers. Ench. ii. p. 605. Pursh Fl. Amer. Sept. i. p. 9.; ? *F.* subvillòsa *Bosc*; has the leaflets petiolate, elliptic-oblong, acuminated, sharply serrated, downy beneath; common petioles glabrous.

The length of the annual shoots, and the spaces between the buds, are one half those of *F.* americàna; and the tree is of smaller size, and slower growth. The leaves are from 12 in. to 15 in. long, downy on the under surface; and, on insulated trees, this down becomes red on the approach of autumn, both on the leaves and shoots of that year; whence, probably, the name of red ash. The bark of the trunk is of a deep brown, and the heartwood of a brighter red than that of the white ash.

♆ 11. *F.* (A.) SAMBUCIFO'LIA *Vahl.* The Elder-leaved Ash.

*Identification.* Vahl Enum., 1. p. 51.; Pursh Sept., 1. p. 8.; Don's Mill., 4. p. 54.
*Synonymes.* *F.* nìgra *Mœnch*; *F.* crìspa *Hort.*; the black Ash, Water Ash, *Amer.*
*Engravings.* Michx. N. Amer. Syl., 3. t. 122.; and our *figs.* 1257. and 1258.

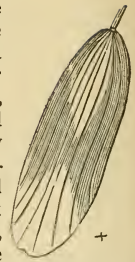
*Spec. Char., &c.* Leaflets 3 pairs, 3 in. to 4 in. long, acute at both ends, sessile, ovate-lanceolate, serrated, having the axils of the veins villous beneath. Young branches green, beset with black dots. Buds brown or blue. Flowers like those of the common ash. (*Don's Mill.*) A deciduous tree. Canada to Carolina. Height 60 ft. to 70 ft. in America; in England 30 ft. Introduced in 1800. Flowers greenish yellow; May.

1257. *F.* (a.) sambucifòlia.

*Variety.*

♆ F. (*a.*) *s.* 2 *crìspa* Lodd. Cat. ed. 1836 has the leaves curled. Lod.

The buds are of a deep blue, and the young shoots are sprinkled with dots of the same colour, which disappear as the season advances. The leaves, at their unfolding, are accompanied by scales, which fall after two or three weeks: they are 12 or 15 inches long when fully developed; and the leaflets are sessile, of a deep green colour, smooth on the upper surface, and coated with red down on the main ribs beneath. When bruised, they emit an odour like that of the leaves of the elder. The samaras resemble those of the blue ash (*F.* quadrangulàta), and are nearly as broad at the base as at the summit. The black ash is easily distinguished from the white ash by its bark, which is of a duller hue, less deeply furrowed, and has the layers of the epidermis applied in broad sheets


1258. F. (a.) sambucifolia.

♀ 12. *F.* (A.) QUADRANGULA'TA *Michx.* The quadrangular-*branched* Ash.

*Identification.* Michx. Fl. Bor. Amer., 2. p. 255.; Pursh Sept., 1. p. 8.; Don's Mill., 4. p. 55.
*Synonymes.* *F* tetragòna *Cels* ex *Dum. Cours.*; *F.* quadrangulàris *Lodd. Cat.* ed. 1836; blue Ash, *Amer.*
*Engravings.* Michx. N. Amer. Syl., 3. t. 123.; and our *figs.* 1259. and 1260.

*Spec. Char., &c.* Leaflets almost sessile, elliptic-lanceolate, serrated, downy beneath. Samara blunt at both ends. Branches quadrangular. (*Don's Mill.*) A deciduous tree. Ohio, Kentucky, and Tennessee. Height 60 ft. to 70 ft. Introduced in 1823. Flowers greenish yellow; May.

*Variety.*

♀ F. (*a.*) *q.* 2 *nervòsa* Lodd. Cat. ed. 1836.—Leaves with conspicuous nerves.

1259. *F.* (a.) quadrangulàta.

The leaves are from 12 in. to 18 in. long, and are composed of 2, 3, or 4 pairs of leaflets, with an odd one. The leaflets are large, smooth, oval-acuminate, distinctly toothed, and supported by short petiolules. The young shoots to which the leaves are attached are distinguished by 4 opposite membranes, 3 or 4 lines broad, and of a greenish colour, extending through their whole length. This character disappears in the third or fourth year, leaving only the traces of its existence. The seeds are flat from one extremity to the other, and a little narrowed towards the base. Readily distinguished from all the other varieties of American ash, as far as we have been able to observe these in the neighbourhood of London, by the bark of the trunk, which cracks and separates at the edges into thin plates, much in the same way as that of the white American oak (Quércus álba).

1260.

♀ 13. *F.* (A.) JUGLANDIFO'LIA *Lam.* The Walnut-leaved Ash.

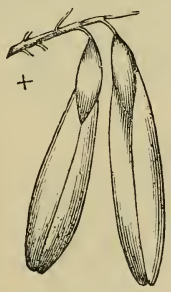
*Identification.* Lam. Dict., 2. p. 543.; Pursh Sept., 1. p. 9.; Don's Mill., 4. p. 55.
*Synonymes.* *F.* viridis *Michx. N. Amer. Syl.* 3. p. 65. t. 120.; *F.* cóncolor *Muhl.*; the green Ash, *Michx.*; western black Ash, *Pursh.*
*Engravings.* Michx. N. Amer. Syl., 3. t. 120.; the plate in Arb. Brit., 1st edit., vol. vi.; and our *figs.* 1261. and 1262.

*Spec. Char., &c.* Leaflets 2—4 pairs, 3 in. long, membranous, glabrous, but not shining, canescent beneath, downy in the axils of the veins, stalked, elliptic-lanceolate, serrated, glaucous beneath. Petioles glabrous. Branches glabrous, and, like the buds, greyish brown. Flowers calyculate. Calyx 4-toothed. Corymbs pendulous. Samara linear. (*Don's Mill.*) A deciduous tree. Canada to North Carolina; found in shady wet woods, and chiefly in the western districts. Height 30 ft. to 50 ft. Introduced in 1724. Flowers greenish yellow; May.

*Variety.*

ϒ F. (*a.*) j. 2 *subintegérrima* Vahl Enum. i. p. 50. *F. juglandifòlia* β *subserràta Willd.*; *F.* caroliniàna *Wangenh. Amer.* p. 81. ex *Willd. Du Roi Harbk.* ed. 2. vol. i. p. 400. ex *Vahl.*, *F.* Nòvæ-A'ngliæ and *F.* caroliniàna *Mill. Dict.* Nos. 5, 6. ?—Leaflets nearly entire.

The green ash is easily recognised by the brilliant colour of its young shoots; and by its leaves being nearly of the same colour on both surfaces. From this uniformity, which is rarely observed in the foliage of trees, Dr. Muhlenburg applied the specific name cóncolor; and Michaux gave this tree the popular



1261. *F.* (a.) *juglandifòlia.*

1262. *F.* (a.) *juglandifòlia.*

name of the green ash. The leaves vary in length from 6 in. to 15 in. with from 2 to 4 pairs of leaflets, and an odd one, according to the vigour of the tree, and to the coolness of the soil in which it grows. The leaflets are petiolated, and distinctly denticulated. The seeds are small; and the tree does not attain a great size. There is a splendid specimen 70 ft. high on the banks of the Thames, adjoining Pope's villa, which is that figured in our first edition.

### ϒ 14. *F.* (A.) CAROLINIA`NA *Lam.* The Carolina Ash.

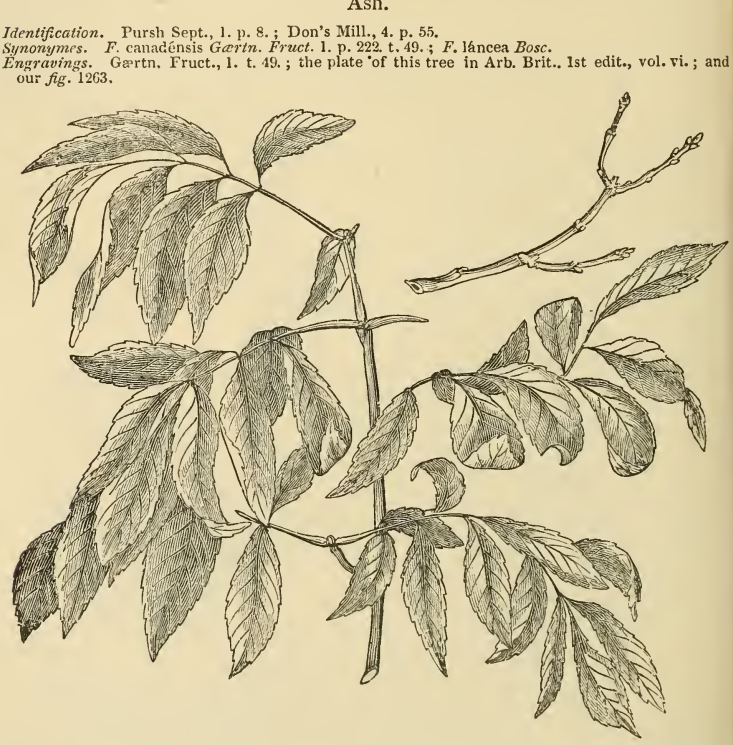
*Identification.* Lam. Dict., 2. p. 543.; Pursh Sept., 1. p. 9.; Don's Mill., 4. p. 55.; Lodd. Cat., ed. 1836.
*Synonymes.* *F.* excélsior *Walt. Fl. Car.* p. 254.; *F.* serratifòlia *Michx. fil. Arb.* p. 33.; *F.* lanceolàta *Borkh.*; shining Ash, *Amer.*
*Engraving.* Our *fig.* 2100. in p. 1109.

*Spec. Char., &c.* Leaflets 2—3 pairs, oval, petiolate, serrated, glabrous and shining above. Flowers calyculate. Branches glabrous, and, like the buds, brownish. Racemes loose, 1½ in. long, often twin from the same bud. Pedicels numerous, umbellate. Calyx small, campanulate. (*Don's Mill.*, adapted.) A deciduous tree. Pennsylvania to Carolina. Height 30 ft. to 50 ft. Introduced in 1783. Flowers greenish yellow; May and June.

This is a very remarkable variety, readily distinguished by the large size of its leaflets, which are nearly round, but acuminated, and seldom consist of more than two pairs, with an odd one. The samaras are unlike those of any of the preceding sorts; being flat, oval, and often almost as broad as they are long. In spring, the lower surface of the leaves, and the young shoots, are covered with down, which disappears as the summer advances. H. S., Lod.

ϒ 15. *F.* (A.) EPI'PTERA *Vahl.* The wing-topped-*seeded, or two-coloured.* Ash.

*Identification.* Pursh Sept., 1. p. 8.; Don's Mill., 4. p. 55.
*Synonymes.* *F.* canadénsis *Gærtn. Fruct.* 1. p. 222. t. 49.; *F.* láncea *Bosc.*
*Engravings.* Gærtn. Fruct., 1. t. 49.; the plate of this tree in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 1263.



1263. *F.* (a.) epíptera.

*Spec. Char., &c.* Leaflets lanceolate-elliptic, subserrated, opaque, and downy beneath on the veins. Samara cuneated, obtuse and emarginate at the apex, and terete at the bottom. Young branches green, covered with white dots. Bark chinky. Flowers calyculate. Buds brown. (*Don's Mill.*) A deciduous tree. Canada to Carolina. Height 50 ft. Introduced in 1823. Flowers greenish yellow; May. Lod. and Hort. Soc. Garden.

ϒ 16. *F.* (A.) PLATYCA'RPA *Vahl.* The broad-fruited Ash.

*Identification.* Vahl Enum., 1. p. 49.; Pursh Sept., 1. p. 9.; Don's Mill., 4. p. 55.; Lodd. Cat., ed. 1836.
*Synonymes.* *F.* caroliniàna *Catesb. Car.* t. 80.; the Carolina Ash, *Amer.*
*Engravings.* Michx. N. Amer. Syl., 3. fig. 124.; and our *figs.* 1264. and 1265.

*Spec. Char., &c.* Leaflets almost sessile, very distinctly serrated, elliptic-lanceolate, 2 in. long and 1 in. broad; having the larger veins villous beneath. Samara elliptic-lanceolate, 2 in. long, acute at both ends. (*Don's Mill.*) A deciduous tree. Virginia and Carolina. Height 30 ft. to 50 ft. Introduced in 1724. Flowers greenish yellow; May.

1264. F. (a.) pl. tycarpa.

1265.

Very easily known from all the other American ashes, by the leaves dying off, in the autumn, of a fine purple. Lod. and Hort. Soc.

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*Other alleged American Species.* — *F* (a.) expánsa *Willd.*, *F.* (a.) míxta *Bosc*, *F.* (a.) pulverulénta *Bosc*, *F.* (a.) rubicúnda *Bosc*, *F.* (a.) longifòlia *Bosc*, *F.* (a.) víridis *Bosc*, *F.* (a.) cinèrea *Bosc*, *F.* (a.) álba *Bosc*, *F.* (a.) Richárdi Bosc, *F.* (a.) ovàta *Bosc*, *F.* (a ) nìgra *Bosc*, *F.* (a.) ellíptica *Bosc*, *F.* (a.) fúsca *Bosc*, *F.* (a.) rùfa *Bosc*, *F.* (a.) pannòsa *Vent. et Bosc*, *F.* Bóscii G. Don, *F.* (a.) polemoniifòlia *Poir.*, *F.* (a.) tríptera *Nutt.*, *F.* chinénsis *Roxb.*, *F.* Schiedeàna Schlecht. are described in our first edition, and plants of most of them may be had at Messrs. Loddiges's, and in other London nurseries. Except the last two they are only varieties, and in our opinion not worth keeping distinct.

## Genus VII.



O'RNUS *Pers.* The Flowering Ash. *Lin. Syst.* Diándria Monogýnia, or Polygània Diœ`cia.

*Identification.* Pers. Ench., 1. p. 8.; Pursh Sept., 1. p. 6.; Don's Mill., 4. p. 56.
*Synonymes.* Fráxinus sp. of the older authors; le Frêne à Fleurs, *Fr.*; die blühende Esche, *Ger.*; Orno, *Ital.*; Oren, *Hebrew*; Oreinē mēlia, *Greek*.
*Derivation.* From *oros*, the Greek word for a mountain.

*Gen. Char., &c.* *Flowers* hermaphrodite, or of distinct sexes. *Calyx* 4-parted or 4-toothed. *Corolla* 4-parted; segments long, ligulate. *Stamens* with long filaments. *Stigma* emarginate. *Samara* 1-celled, 1-seeded, winged. (*Don's Mill.*)

*Leaves* compound, opposite, exstipulate, deciduous; impari-pinnate. *Flowers* in terminal or axillary panicles.

Trees, deciduous; natives of Europe, North America, and Asia; in British gardens, propagated by grafting on the common ash, and sometimes by seeds.

♃ 1. *O.* europæ`a *Pers.* The European Flowering, *or Manna*, Ash.

*Identification.* Pers. Ench., 1. p. 9.; Don's Mill., 4. p. 56.
*Synonymes.* Fráxinus O'rnus *Lin. Sp.* 1510.; *F.* O'rnus and *F.* paniculàta *Mill. Dict.* No. 3. and No. 4.; *F.* florífera *Scop. Carn.* No. 1250.; *F.* botryóides *Mor. Prælud.* 265.; *F.* vulgàtior *Segn. Ver.* 2. p. 290.
*Engravings.* Fl. Græc., 1. t. 4.; N. Du Ham., t. 15.; the plates of this species in Arb. Brit., 1st edit., vol. vi.; and our *fig.* 1266.

*Spec. Char., &c.* Leaves with 3—4 pairs of lanceolate or elliptic, attenuated, serrated, stalked leaflets, which are entire at the base, villous or downy

beneath. Flowers complete or hermaphrodite, greenish white. Peduncles axillary, solitary, shorter than the leaves. Young branches purplish or livid, with yellow dots. Buds cinereous. (*Don's Mill.*) A deciduous tree. South of Europe. Height 20 ft. to 30 ft. Introduced in 1730. Flowers white; May and June. Samara brown; ripe in October.

1266. *O*'rnus europæ'a.

A very handsome small tree, and a free flowerer. It and also the following species, and probably all those of both the genera *F*ráxinus and *O*'rnus, extravasate sap, which, when it becomes concrete, is mild and mucilaginous. This sap is produced in more abundance by *O*'rnus europæ'a and *O.* rotundifòlia, than by any other species; collected from these trees, it forms an article of commerce under the name of manna, which is chiefly obtained from Calabria and Sicily, where the tree abounds.

### ✝ 2. *O.* (E.) ROTUNDIFO'LIA *Pers.* The round-leafleted Flowering, *or Manna*, Ash.

1267. *O.* (e.) rotundifòlia.

*Identification.* Pers. Ench., 2. p. 605.; Don's Mill., 4. p. 57.
*Synonymes.* *F*ráxinus rotundifòlia *Ait Hort. Kew.* 3. p. 445.; *F.* mannífera *Hort. Pluk. Alm.* 182. f. 4.
*Engravings.* Willd. Baum., t. 2. f. 1.; Pluk. Alm., p. 4.; and our *figs.* 1267. and 1268.

*Spec. Char., &c.* Leaves with 3—5 pairs of roundish-ovate, bluntly serrated, almost sessile leaflets, which are narrow at the base, rather small, and glabrous. Petioles channeled. Flowers with purplish petals, polygamous. Peduncles axillary. Branches and buds brown. The flowers come out in the spring, before the leaves, like those of other species of this genus, as well as of that of *F*ráxinus. (*Don's Mill.*) A low tree. Calabria and the Levant, &c. Height 16 ft. to 20 ft.; in England 30 ft. to 40 ft. Introd. 1697. Flowers white; April.

1268.

♃ 3 *O.* (E.) AMERICA'NA *Pursh.* The American Flowering Ash.

*Identification.* Pursh Sept., 1. p. 9.; Don's Mill., 4. p. 57.
*Synonymes.* *F.* americàna *Linn. Sp.* 1510. ?; *F. O'*rnus americàna *Lodd. Cat.* ed. 1836.
*Engraving.* Our *fig.* 1269.

*Spec. Char., &c.* Leaves with 2—5 pairs of oblong or ovate-acuminated, shining, serrated leaflets, each 3 in. to 5 in. long, and 2 in. broad, and having the larger veins rather villous, glaucous, and paler beneath, the odd one rather cordate. Flowers with petals, disposed in terminal panicles. Branches brownish grey. Buds brown. Samara narrow, obtuse, mucronate. (*Don's Mill.*) A tree. North America. Height 30 ft. to 40 ft. Introd. in 1820. Flowers white; April and May.

A more robust-growing plant than *O.* europæ'a.

1269 *O.* (e.) americàna.

♃ 4. *O.* FLORIBU'NDA *G. Don.* The abundant-flowered Flowering Ash.

*Identification.* G. Don in Loud. Hort. Brit., p. 12.; Don's Mill., 4. p. 57.
*Synonyme.* Fráxinus floribúnda *D. Don Prod. Fl. Nep.* p. 106.
*Engravings.* Wall. Pl. Rar. Asiat., 2. t. 277.; and our *fig.* 1270.

*Spec. Char., &c.* Leaves with 2—3 pairs of elliptic-oblong, acuminated, serrated, glabrous, stalked leaflets, and an odd one, varying much in figure, the terminal, or odd, one the largest. Panicles terminal, compound, thyrsoid. Samara linear, or narrow-spathulate, obtuse, and entire. Bark ash-coloured, dotted. Branchlets compressed. (*Don's Mill.*) A deciduous tree. Nepal. Height 30 ft. to 40 ft. Introd. 1822. Flowers white; April.

There was a plant of this species in the Horticultural Society's Garden, against the conservative wall, which died in the spring of 1836.

1270. *O.* floribúnda.

*O. striàta* Swt.; *F*ráxinus striàta *Bosc, Don's Mill.* 4. p. 57.; is a native of North America, said to have been introduced in 1818, but we have not seen the plant nor a figure of it.

## Order XLIX. JASMINA'CEÆ.

*Ord. Char. Calyx* tubular, divided or toothed. *Corolla* salver-shaped, 5-cleft; æstivation imbricate and twisted. *Stamens* epipetalous. *Ovarium* 2-celled. *Cells* 1-seeded. *Style* 1. *Stigma* 2-lobed. *Fruit* a didymous berry, or a biparted capsule. *Albumen* sparing, or wanting altogether. This differs from Oleíneæ, to which it is nearly allied, by the erect ovula, structure of seeds, and æstivation of corolla. (*Don's Mill.*)

*Leaves* simple or compound, opposite, exstipulate, deciduous or evergreen; ternate or imparipinnate, with the petioles for the most part articulated. *Flowers* opposite, in corymbs. — Shrubs, deciduous or evergreen; natives of Europe, Asia, and America.

### Genus I.

JASMI'NUM *Forskoel.* The Jasmine. *Lin. Syst.* Diándria Monogýnia.

*Identification.* Forskoel Ægyp. Arab., p. 59.; Don's Mill., 4. p. 59.
*Synonymes. Mongòrium* Lam.; Jessamine; Jasmin, *Fr.* and *Ger.*; Schasmin, *Ger.*; Gelsomine, *Ital.*; Jazmin, *Span.*
*Derivation.* Linnæus derives this name from *ion*, a violet, and *osmē*, smell: but the scent of the flowers has no resemblance to that of the violet. Forskoel, in his *Ægyp. Arab.* p. 59., says that it is taken from the Arabian name of the plant, *Ysmym*, which appears much more probable.

*Gen. Char., &c. Calyx* tubular, 5—8-toothed or 5—8-cleft. *Corolla* 5—8-cleft. *Stigma* 2-lobed or bifid. *Berry* didymous, having one of the lobes usually abortive. *Seeds* without albumen. (*Don's Mill.*)

*Leaves* simple or compound, opposite, exstipulate, mostly sub-evergreen, mostly entire. Petioles articulated. *Flowers* white or yellow, axillary or terminal, odoriferous. — Shrubs, usually sub-evergreen, and twining or rambling; natives of Europe, Asia, or Africa. Propagated readily by cuttings in common garden soil, and usually grown against walls.

1. *J.* FRU'TICANS *L.* The Sprig-producing, *or shrubby*, Jasmine.

*Identification.* Lin. Sp., 1. p. 9., Syst., ed. 14.; Don's Mill., 4. p. 63.
*Synonyme. J.* heterophýllum *Mœnch, Lob. Adv.* p. 389. f. 390.
*Engravings.* Bot. Mag., t. 461.; Schmidt Baum., 3. t. 148.; our *fig.* 1271., and *fig.* 1272. from a living specimen.

1271. *J.* frùticans.

*Spec. Char., &c.* Leaves alternate, trifoliolate, and simple, glabrous; leaflets obovate or cuneiform, obtuse. Branches angular. Calycine segments subulate. Peduncles terminal, by threes. Corolla yellow, with oblong obtuse segments. (*Don's Mill.*) A sub-evergreen shrub. South of Europe, and throughout the Levant. Height 6 ft. to 8 ft. Introduced in 1570. Flowers yellow; May to October. Fruit black; ripe Nov.

1272. *J.* frùticans.

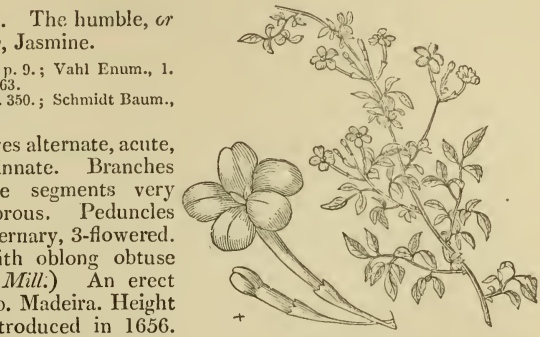
A very desirable sub-evergreen, either for planting in borders, or against walls; flowering freely, and ripening abundance of fruit. It sends up numerous suckers; which, when it is desired that the plant should assume a garden-

esque character, should all be removed, leaving the branches to proceed from a single stem, or from two, three, or any other small and limited number of stems.

2. *J.* HUMILE *L.* The humble, *or Italian yellow*, Jasmine.

*Identification.* Lin. Sp., 1. p. 9.; Vahl Enum., 1. p. 33.; Don's Mill., 4. p. 63.
*Engravings.* Bot. Reg., t. 350.; Schmidt Baum., t. 149.; and our *fig.* 1273.

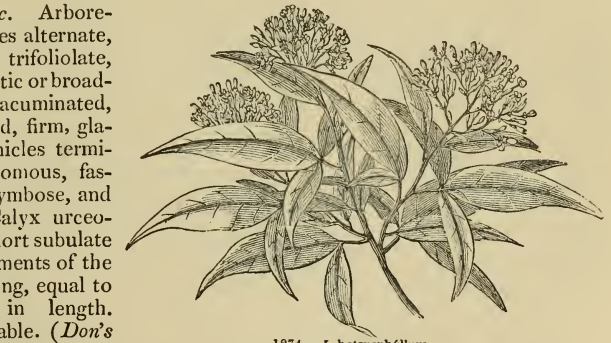
*Spec. Char., &c.* Leaves alternate, acute, trifoliolate, and pinnate. Branches angular. Calycine segments very short. Plant glabrous. Peduncles terminal, twin or ternary, 3-flowered. Corolla yellow, with oblong obtuse segments. (*Don's Mill.*) An erect sub-evergreen shrub. Madeira. Height 3 ft. to 4 ft. Introduced in 1656. Flowers yellow; June to September.


1273. *J.* humile.

3. *J.* HETEROPHYLLUM *Roxb.* The various-leaved Jasmine.

*Identification.* Roxb. Fl. Ind., 1. p. 99. and 164.; Don's Mill., 4. p. 63.
*Synonymes.* *J.* arbóreum *Hamilt. MSS.*; Goojee and Javana *in Nepal.*
*Engravings.* Wall. Pl. Asiat. Rar., 3. t. 275.; and our *fig.* 1274.

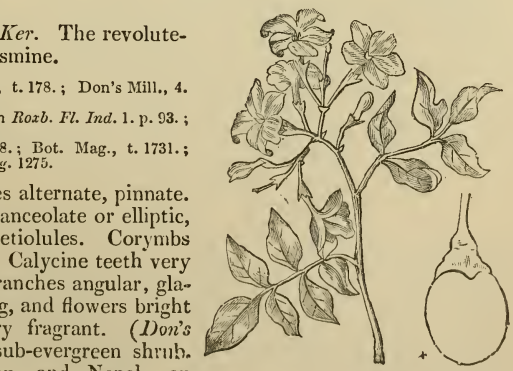
*Spec. Char., &c.* Arboreous. Leaves alternate, simple or trifoliolate, oblong-elliptic or broad-ovate, and acuminated, waved, lucid, firm, glabrous. Panicles terminal, trichotomous, fastigiate, corymbose, and downy. Calyx urceolate, with short subulate teeth. Segments of the corolla oblong, equal to the tube in length. Leaves variable. (*Don's Mill.*) A middle-sized tree; in England a sub-evergreen shrub. Nepal. Height 6 ft. to 20 ft. Introduced in 1820. Flowers bright yellow, fragrant; July and August.


1274. *J.* heterophyllum.

4. *J.* REVOLUTUM *Ker.* The revolute-*flowered* Jasmine.

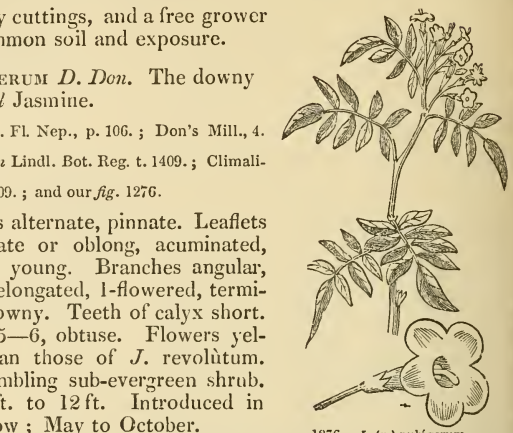
*Identification.* Ker Bot. Reg., t. 178.; Don's Mill., 4. p. 64.
*Synonymes.* *J.* chrysánthemum *Roxb. Fl. Ind.* 1. p. 93.; the Nepal yellow Jasmine.
*Engravings.* Bot. Reg., t. 178.; Bot. Mag., t. 1731.; Bot. Cab., t. 966.; and our *fig.* 1275.

*Spec. Char., &c.* Leaves alternate, pinnate. Leaflets 5—7, óvate-lanceolate or elliptic, glabrous, on short petiolules. Corymbs terminal, compound. Calycine teeth very short, mucronate. Branches angular, glabrous. Leaves shining, and flowers bright and yellow, and very fragrant. (*Don's Mill.*) A rambling sub-evergreen shrub. North of Hindostan and Nepal, on


1275. *J.* revolutum.

mountains. Height 10 ft. to 15 ft. Introduced in 1812. Flowers bright yellow, very fragrant; May to October.

Readily propagated by cuttings, and a free grower and flowerer in any common soil and exposure.



1276. *J.* (R.) pubígerum.

5. *J.* (R.) PUBI'GERUM *D. Don.* The downy *Nepal* Jasmine.

*Identification.* D. Don Prod. Fl. Nep., p. 106.; Don's Mill., 4. p. 64.
*Synonymes.* *J.* Wallichiànum Lindl. Bot. Reg. t. 1409.; Climaliswa, *Nepalese.*
*Engravings.* Bot. Reg., t. 1409.; and our *fig.* 1276.

*Spec. Char., &c.* Leaves alternate, pinnate. Leaflets 7—9; ovate-lanceolate or oblong, acuminated, sessile, downy while young. Branches angular, downy. Peduncles elongated, 1-flowered, terminal, subcorymbose, downy. Teeth of calyx short. Segments of corolla 5—6, obtuse. Flowers yellow, and smaller than those of *J.* revolùtum. (*Don's Mill.*) A rambling sub-evergreen shrub. Nepal. Height 10 ft. to 12 ft. Introduced in 1827. Flowers yellow; May to October.

So closely resembles the preceding one, that we cannot doubt its being only a variety of it.

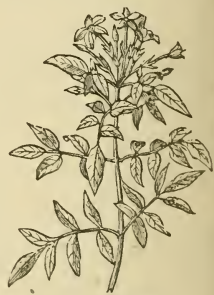
6. *J.* OFFICINA'LE *L.* The officinal, *or common*, Jasmine.

*Identification.* Lin. Sp., 1. p. 9.; Vahl Enum., 1. p. 34.; Don's Mill., 4. p. 63.
*Engravings.* Bot. Mag., t. 31.; Schmidt Baum., 3. t. 150.; and our *fig.* 1277.

*Spec. Char., &c.* Leaves opposite, pinnate; leaflets ovate, acuminated, terminal one longest. Young buds erectish. Plant glabrous. Branches angular. Calycine segments 5, subulate. Corolla white, 4—5-cleft, sweet-scented. (*Don's Mill.*) A climbing shrub, evergreen from the colour of its shoots. Malabar to Georgia and Mount Caucasus, in woods. Stems 40 ft. to 50 ft. Introd. 1596, or long before. Flowers white, highly odoriferous; June to August. Fruit black, only produced occasionally in England.

*Varieties.*

- J. *o.* 2 *fòliis argénteis* Lodd. Cat. — Leaves striped with white.
- J. *o.* 3 *fòliis aúreis* Lodd. Cat. — Leaves striped with yellow.
- J. *o.* 4 *flòribus plènis* Hort. — Flowers double, very rare.



1277. *J.* officinàle.

The common jasmine generally loses its leaves in the winter season, especially in exposed situations; but, as its young shoots are of a fine deep green, and the plant is generally covered with them, it has the appearance at that season of an evergreen. The shoots are frequently produced 7 or 8 feet in length, and upwards, in one season.

## ORDER L. *APOCYNA'CEÆ.*

*ORD. CHAR.* *Calyx* 5-cleft, persistent. *Corolla* 5-lobed, deciduous; æstivation imbricate. *Stamens* 5, epipetalous. *Ovarium* solitary or twin, usually many-seeded. *Styles* 1 or 2. *Stigmas*, where 2, applied to each other. *Fruit* follicular, drupaceous, or baccate; solitary or twin; 1- or many-seeded. *Albumen* generally present.—Distinguished from *Asclepiàdeæ* in the structure of the anthers and stigmas. (*G. Don.*)

*Leaves* simple, opposite, exstipulate, evergreen; entire, shining. *Flowers* axillary.—Trailing, suffruticose, evergreen shrubs; natives of Europe.

## GENUS I.

### VI'NCA *L.* THE PERIWINKLE. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Lin. Gen., No. 295.; Juss., 144.; Don's Mill., 4. p. 95.
*Synonymes.* *Pervínca Tourn.* t. 45.; la Pervenche, *Fr.*; Sumngrün, *Ger.*; Vinca, or Fior da Morto, *Ital.*
*Derivation.* In Don's *Miller*, this word is said to be derived from *vinco*, to conquer; because the species subdue other plants by their creeping roots, or bind them by their runners: but a much better origin seems to be from *vinculum*, a band, on account of the suitableness of the shoots for the purpose of making bands.

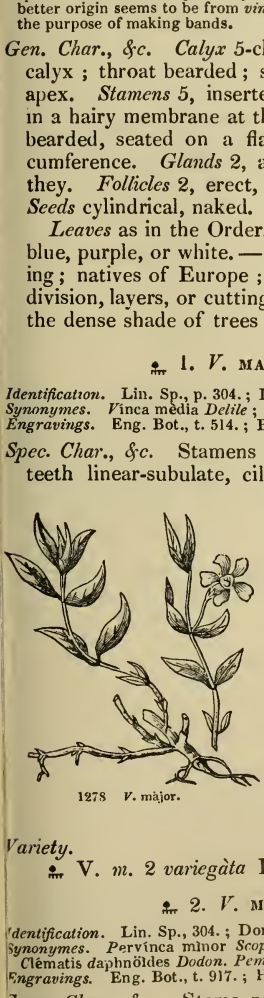
*Gen. Char., &c.* *Calyx* 5-cleft. *Corolla* salver-shaped; tube longer than the calyx; throat bearded; segments of the limb flat, oblique, truncate at the apex. *Stamens* 5, inserted in the throat, enclosed. *Anthers* ending each in a hairy membrane at the apex, which connive over the stigma. *Stigma* bearded, seated on a flat orbicular disk, which is grooved round the circumference. *Glands* 2, alternating with the ovaries, glabrous, as well as they. *Follicles* 2, erect, terete, narrow, dehiscing lengthwise, few-seeded. *Seeds* cylindrical, naked. *Albumen* fleshy. (*Don's Mill.*)

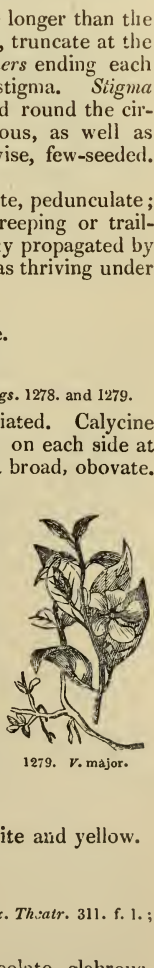
*Leaves* as in the Order. *Flowers* axillary, solitary, alternate, pedunculate; blue, purple, or white.—Shrubs, evergreen, suffruticose, creeping or trailing; natives of Europe; of the easiest culture; and readily propagated by division, layers, or cuttings: valuable in pleasure-grounds, as thriving under the dense shade of trees and shrubs.

#### ♠ 1. *V.* MA'JOR *L.* The greater Periwinkle.

*Identification.* Lin. Sp., p. 304.; Don's Mill., 4. p. 95.; Lodd. Cat., ed. 1836.
*Synonymes.* *Vínca mèdia Delile*; *Pervínca màjor Scop. Carn.* No. 274.
*Engravings.* Eng. Bot., t. 514.; Baxt. Brit. Fl. Pl., vol. 2. t. 158.; and our *figs.* 1278. and 1279.

*Spec. Char., &c.* Stamens erectish. Leaves ovate, acute, ciliated. Calycine teeth linear-subulate, ciliated, usually with a small tooth on each side at the base. Segments of corolla broad, obovate. This species is larger in all its parts than the following sort. Flowering stems erect; barren ones trailing. (*Don's Mill.*) A low, trailing or creeping, suffruticose evergreen. Middle and South of Europe, and apparently wild in some parts of Britain. Height 2 ft., forming a dense, dark green, low, trailing bush, growing freely under the shade of other trees, and producing its fine blue flowers from March to Sept.


1278 *V.* màjor.


1279. *V.* màjor.

*Variety.*
♠ V. *m.* 2 *variegàta* Hort.—Leaves variegated with white and yellow.

#### ♠ 2. *V.* MI'NOR *L.* The less Periwinkle.

*Identification.* Lin. Sp., 304.; Don's Mill., 4. p. 95.; Lodd. Cat., ed. 1836.
*Synonymes.* *Pervínca minor Scop. Carn.* No. 273., *Pervínca vulgàris Park. Theatr.* 311. f. 1.; Clèmatis daphnòides *Dodon. Pempt.* 401.
*Engravings.* Eng. Bot., t. 917.; Hayne Abbild, t. 26.; and our *fig.* 1280.

*Spec. Char., &c.* Stems procumbent. Leaves elliptic-lanceolate, glabrous.

Calycine segments linear-lanceolate, bluntish. Segments of corolla broadish at top. Flowering stems usually erect. Flowers void of scent. Corolla blue, with white throat, varying to purple and white; of a smaller size than that of *V.* màjor. (*Don's Mill.*) A trailing evergreen undershrub. Europe; in many places in Britain, in hedges and woods, in rather damp situations. Flowers blue; March till September.

1280. *V.* minor.

*Varieties.*

- ♃ V. *m.* 2 *fòliis argénteis* Lodd. Cat.—Leaves variegated with white.
- ♃ V. *m.* 3 *fòliis aúreis* Lodd. Cat.—Leaves variegated with yellow.
- ♃ V. *m.* 4 *flòre àlbo* Lodd. Cat. —Flowers white.
- ♃ V. *m.* 5 *flòre plèno* Lodd. Cat —Flowers double.
- ♃ V. *m.* 6 *flòre puníceo* Lodd. Cat.—Flowers red.
- ♃ V. *m.* 7 *acutiflòra* Bert.—Leaves ovate acute at both ends; margins glabrous. Segments of corolla oblique; ovate-acuminate. South of Europe. Flowers blue; March and April.

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## Order LI. *ASCLEPIADACEÆ.*

*Ord. Char.* *Calyx* 5-cleft, persistent. *Corolla* 5-lobed; æstivation usually imbricate. *Stamens* 5, epipetalous. *Pollen masses* equal in number to the cells of the anthers, which are 2 or 4, and fixed to fine processes of the stigma. *Ovarium* twin. *Styles* 2, crowned by one stigma. *Fruit* of 2 follicles. *Seeds* numerous, imbricate, furnished with a tuft of hair at the umbilicus. *Albumen* thin. — The pollen being combined into a definite number of waxy masses separates this order from all other dicotyledonous orders. (*G. Don.*)

*Leaves* simple, opposite, exstipulate, deciduous; shining, entire. *Flowers* subumbellate. — Twining shrubs; natives of South Europe and Asia.

### Genus I.

PERI'PLOCA *L.* The Periploca. *Lin. Syst.* Pentándria Digýnia

*Identification.* R. Br. in Mém. Wern. Soc., 1. p. 57.; Don's Mill., 4. p. 163.
*Synonymes.* Periploca *Fr.*; Schlinge, *Ger.*; Periploca, *Ital.*
*Derivation.* From *periplekō*, to wrap about; in allusion to the twining stems.

*Gen. Char., &c.* *Corolla* rotate. *Throat* furnished with 5 awned scales, which alternate with the segments of the corolla. *Filaments* distinct. *Anthers* cohering, bearded on the back. *Pollen masses* applied to the dilated tops of the corpuscles of the stigma, solitary, or composed of 4 confluent ones. *Stigma* almost mutic. *Follicles* cylindrical, much divaricate, smooth. *Seeds* comose. (*Don's Mill.*)

*Leaves* as in the Order. *Flowers* subcorymbose, interpetiolar. — Shrubs.

deciduous, twining, glabrous; natives of the South of Europe; and propagated by cuttings of the root or shoots, or by layers.

### ♃ 1. P. GRÆ'CA *L.* The Greek Periploca.

*Identification.* Lin. Sp., p. 309.; Don's Mill., 4. p. 163.; Lodd. Cat., ed. 1836.
*Synonymes.* P. maculàta *Mœnch, Schmidt Baum.* 1. t. 46.; Silk Tree; Apocino serpeggiante, *Ital.*
*Engravings.* Fl. Græc., t. 249.; Bot Reg., t. 803.; and our *figs.* 1281. and 1282.

*Spec. Char., &c.* Leaves varying from ovate to lanceolate, 3 in. to 4 in. long. Corymbs on long peduncles. Flowers hairy inside. Branches brown. Segments of corolla linear, rounded at the apex, greenish outside and brownish inside, and clothed with copious short hairs. (*Don's Mill.*) A deciduous twining shrub. South of France, Bithynia; found also about Bursa, and on Mount Athos. Stems 20 ft. to 30 ft. Introduced in 1597. Flowers rich velvety brown; July and August.

1281. P. græ'ca.

1282. P. græ'ca.

The remarkable colour and rich velvety appearance of the flowers, the elegant form of the leaves, and the facility with which the plant can be made to cover an extensive space, render it useful for arbours, &c.; but the odour of the flowers is considered unwholesome, and even dangerous to those who are long exposed to it.

### ♃ 2. P. ANGUSTIFO'LIA *Labill.* The narrow-leaved Periploca.

*Identification.* Labill. Pl. Syr., dec. 2. p. 13. t. 7.; Don's Mill., 4. p. 163.
*Synonymes.* P. rigida *Viv.*; P. lævigàta *Vahl.*
*Engravings.* Labill. Pl. Syr., dec. 2. p. 13. t. 17.; and our *fig.* 1283.

1283. P. angustifòlia.

*Spec. Char., &c.* Leaves veinless, narrow-lanceolate, glabrous, persistent. Cymes trichotomous. Flowers purplish inside, pale yellow beneath and round the mouth, with a white spot in the middle. Leaves 1 in. long. (*Don's Mill.*) A twining shrub. Tunis, on Mount Schibel Jsekel; and of the Island of Lampedosa, at the sea side, near Laodicea. Stem 20 ft. to 30 ft. Introduced in 1800, and quite as hardy as P. græ'ca.

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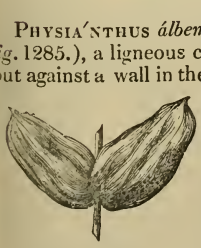
PHYSIA'NTHUS *álbens* Mart., (Bot. Reg., t. 1759.; and our *fig.* 1285.), a ligneous climber from Buenos Ayres, has stood out against a wall in the Horticultural Society's Garden, and in some of the London nurseries, during the winter of 1838–1839. It is a plant of very interesting and uncommon aspect, and not only flowers freely, but produces its ovate pointed fruit (*fig.* 1284.), which, being in clusters and large, has a very singular appearance. Introd. 1830.


1284. P. álbens.

1285. P. álbens.

## Order LII. BIGNONIACEÆ.

*RD. CHAR. Calyx* divided or entire. *Corolla* tubular, generally irregular 4—5-lobed. *Stamens* 5, but either 1 or 3 of them are sterile. *Ovarium* 2-celled, guarded by a glandular disk. *Stigma* bilamellate. *Capsule* 2-valved, 2-celled. *Dissepiment* parallel or contrary. *Seeds* compressed, winged. *Albumen* none.—The structure of the fruit and placentation of the seeds readily distinguish this order from its allies. (*G. Don.*)

*Leaves* simple or compound, opposite, exstipulate, deciduous or sub-evergreen; serrated or entire. *Flowers* terminal and axillary.—Shrubs, climbing by tendrils; natives of North America and China.

The genera which contain hardy species are thus distinguished:—

Bigno'nia Tourn. Calyx 5-toothed. Dissepiment of the fruit parallel.
*Te'coma* Juss. Calyx 5-toothed. Dissepiment of the fruit contrary.
*Cata'lpa* Juss. Calyx 2-parted. Dissepiment of the fruit parallel.

### Genus I.

BIGNO'NIA Tourn. The Trumpet Flower. *Lin. Syst.* Didynàmia Angiospérmia.

*Identification.* Tourn. Inst., 72.; Don's Mill., 4. p. 216.
*Synonymes.* Bignone, *Fr.*; Trompetenblume, *Ger.*; Bignonia, *Ital.*
*Derivation.* Named by Tournefort in compliment to *Abbé Bignon*, librarian to Louis XIV.

*Gen. Char., &c. Calyx* campanulate, 5-toothed, rarely entire. *Corolla* with a short tube, a campanulate throat, and a 5-lobed bilabiate limb. *Stamens* 4, didynamous, that is, 2 long and 2 short; with the rudiment of a fifth. *Lobes* of anthers divaricate. *Stigma* bilamellate. *Capsule* silique-formed, 2-celled; having the dissepiment parallel with the valves. *Seeds* disposed in 2 rows, imbricate, transverse, with membranous wings. (*Don's Mill.*)

*Leaves* compound, opposite, sub-evergreen; conjugate, stipulate, trifoliolate. *Flowers* axillary, usually panicled.—Shrubs, usually scandent, furnished with tendrils. The only hardy species is a deciduous climber, a native of North America; and easily propagated by cuttings of the roots, or shoots, in common soil.

♃ 1. B. capreola'ta *L.* The tendriled Bignonia, *or Trumpet Flower.*

*Identification.* Lin. Sp., 870.; Hort. Cliff., 317.; Don's Mill., 4. p. 217.
*Engravings.* Bot. Mag., t. 864.; and our *fig.* 1286.

*Spec. Char., &c.* Climbing. Leaves conjugate; leaflets cordate-oblong; lower ones simple. Tendrils small, trifid; the lobes bifurcate. Peduncles axillary, 1-flowered, crowded. Calyx entire. Corollas reddish yellow. Follicles flattened, 1 ft. long. (*Don's Mill.*) A climbing deciduous shrub. North America, in the more southern parts. Stem 15 ft. to 20 ft. Introduced in 1710. Flowers orange brown; June and July.

1286. B. capreolata.

A very ornamental wall climber, but it requires a sheltered situation and favourable exposure, in order to flower freely. In sheltered situations, in a climate not colder than that of London, it forms a very desirable shrub for covering latticework, either forming the support of a verandah, or the sides and roof of a berceau or bower.

## GENUS II.

*TE'COMA* Juss. THE TECOMA. *Lin. Syst.* Didynàmia Angiospermia.

*Identification.* Juss. Gen., p. 139. ; Don's Mill., 4. p. 223.
*Synonyme.* Bignònia sp. of Lin. and others.
*Derivation.* From *Tecomaxochitl*, the Mexican name of one of the species.

*Gen. Char., &c.* *Calyx* campanulate, 5-toothed. *Corolla* with a short tube and a campanulate throat ; limb 5-lobed, bilabiate. *Stamens* 4, didynamous, that is, 2 long and 2 short ; with the rudiment of a fifth sterile filament. *Stigma* bilamellate. *Capsule* silique-formed, 2-celled, having the dissepiment contrary to the valves. *Seeds* disposed in 2 rows, imbricate, winged, transverse. (*Don's Mill.*)

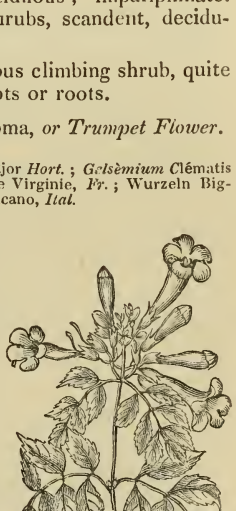
*Leaves* compound, opposite, exstipulate, deciduous ; imparipinnate. *Flowers* terminal, panicled, orange or scarlet. — Shrubs, scandent, deciduous ; natives of Asia and North America.

The only hardy species yet introduced is a deciduous climbing shrub, quite hardy, and readily propagated by cuttings of the shoots or roots.

♃ 1. *T.* RADI'CANS *Juss.* The rooting-*branched* Tecoma, *or Trumpet Flower.*

*Identification.* Juss. Gen., p. 139. ; Don's Mill., 4. p. 225.
*Synonymes.* Bignònia radìcans *Lin. Sp.* 871. ; Bignònia radìcans mâjor *Hort.* ; *Gelsèmium* Clématis *Barrel. Icon.* 59. ; Bignònia *fraxinifòlia Catesb. Car.* ; Jasmin de Virginie, *Fr.* ; Wurzeln Bignonia, *Ger.* ; Esschenblädige Bignonia, *Dutch.* ; Gelsomino americano, *Ital.*
*Engravings.* Bot. Mag., t. 485. ; and our *fig.* 1287.

*Spec. Char., &c.* Climbing, glabrous. Branches rough, rooting. Leaflets 9, ovate, acuminated, coarsely serrated. Racemes terminal, corymbose, on long peduncles. Tube of corolla 5 times longer than the calyx. (*Don's Mill.*) A robust deciduous climber, which fixes itself to trees or walls by its roots, like ivy. Carolina, Florida, and Virginia. Stems 20 ft. to 30 ft. Introduced in 1640. Flowers scarlet and orange-coloured, large ; August and September.



1287. *T.* radìcans.

*Variety.*

♃ T. *r.* 2 *mâjor* Hort. has the flowers larger and of a darker scarlet ; the leaves, also, differ considerably, both in size and shape. Carolina ; August. Introduced in 1724.

In British gardens it grows vigorously, producing tufts of leaves and fine flowers abundantly at the extremity of the branches, but is rather apt to become naked below.

♃ 2. *T.* GRANDIFLO'RA *Swt.* The great-flowered Tecoma.

*Identification.* Sweet's Hort. Brit., p. 14. ; Don's Mill., 4. p. 225.
*Synonymes.* Bignònia grandiflòra *Thunb. Fl. Jap.* 253. ; B. chinensis *Lam. Dict.* 1. p. 424. ; Rjotsjo *Kæmpf. Amœn.* p. 856. ; Incarvillea grandiflòra *Spreng Syst.* 2. p. 836. ; Tung-von-fa, *Chinese.*
*Engravings.* Banks Icon. Kæmpf., t. 21. ; and our *fig.* 1288.

*Spec. Char., &c.* Slightly scandent, glabrous. Leaflets 7—9, ovate, acuminated, coarsely serrated, attenuated at the base. Panicles terminal, pendulous. Calycine segments lanceolate, length of the tube of the corolla. Branches rooting. Young shoots spotted with dark purple. Leaves

1288. *T.* grandiflòra.

6 in. to 10 in. long. Petioles marginate. Flowers pendulous, forming terminal cross-armed panicles, large, of a tawny orange colour on the outside, and of a tolerably bright reddish orange colour inside, with brighter streaks. Nectary a glandular crenated ring. Anterior lobe of stigma recurved. (*Don's Mill.*) A climbing deciduous shrub. China and Japan. Stem 20 ft. to 30 ft. Introduced in 1800. Flowers orange-coloured; July and August.

Almost as hardy as *Técoma* radìcans, which it greatly resembles, but of a slighter habit, though it has much larger flowers, and is altogether a very splendid plant.

## Genus III.

*CATA'LPA* Juss. The Catalpa. *Lin. Syst.* Diándria Monogýnia.

*Identification.* Juss. Gen., 138., ed. Usteri, p. 155.; Don's Mill., 4. p. 230.
*Synonymes.* Bignònia sp. of Lin. and others; Bignone Catalpa, *Fr.*; gemeine Trompetenblume, *Ger.*
*Derivation.* The Indian name of a species of Bignònia.

*Gen. Char., &c. Calyx* 2-parted. *Corolla* campanulate, with a ventricose tube, and an unequal 4-lobed limb. *Stamens* 5, 2 of which are fertile, and 3 of them sterile. *Stigma* bilamellate. *Capsule* silique-formed, long, cylindrical, 2-valved. *Dissepiment* opposite the valves. *Seeds* membranously margined, and pappose at the base and apex. (*Don's Mill.*)

*Leaves* simple, opposite, or disposed 3 in a whorl, exstipulate, deciduous; entire. *Flowers* terminal, panicled, white. — A tree, deciduous; native of North America; of easy culture in common soil, and propagated by imported seeds or cuttings of the roots.

♀ 1. *C. SYRINGÆFO'LIA Sims.* The Lilac-*like*-leaved Catalpa.

*Identification.* Sims Bot. Mag., t. 1094.; Don's Mill., 4. p. 230.
*Synonymes.* Bignònia *Catálpa* Lin. Sp., 868.; *Catálpa* bignoniòìdēs Walt. Fl. Car. p. 64.; *C.*

1289. *Catálpa syringæfòlia.*

cordifòlia *Nutt. Gen. Amer.* 1. p. 10.; Bois Shavanon, Catalpa de l'Amérique, *Fr.*; Trompetenbaum, *Ger.*; Catalpa-boom, *Dutch*

*Derivation.* The French of Upper Louisiana call this tree Bois Shavanon, from its being found in abundance on the banks of the river *Shavanon*, now called the Cumberland. *Catálpa* is supposed to be a corruption of *Catawba*, an Indian tribe that formerly occupied a great part of Georgia and the Carolinas.
*Engravings.* Schmidt Baum., 1. t. 14.; the plates in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1289.

*Spec. Char., &c.* Leaves cordate, flat, 3 in a whorl, large and deciduous. Branches strong. Panicles large, branchy, terminal. (*Don's Mill.*) A deciduous tree. Carolina, Georgia, and Florida, on the banks of rivers. Height 20 ft. to 30 ft. sometimes 60 ft. Introduced in 1726. Flowers white, marked with purple and yellow; July and August. Capsules remarkably long, narrow, and horny.

The catalpa is generally propagated by seeds, which are imported from America; but it will grow readily from cuttings of the root; and, of course, plants so raised will flower much sooner than those which are raised from seed. The tree is of rapid growth till it attains the height of 20 ft., which, in deep free soil, in the neighbourhood of London, it does in 10 years.

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## Order LIII. SOLANA`CEÆ.

*Ord. Char. Calyx* 5-cleft, persistent. *Corolla* 5-cleft, usually regular; æstivation imbricate or plicate. *Stamens* 5, rarely 4, epipetalous. *Style* 1. *Fruit* 2—4-celled, capsular or baccate. *Albumen* fleshy. Regular flowers, arched or spiral embryo, plicate æstivation of corolla, and equal stamens, distinguish this order from its allies. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous or sub-evergreen; oblong, and sometimes pinnately divided. *Flowers* solitary or numerous. — Shrubs, deciduous or sub-evergreen; natives of Europe, Asia, and South America; readily propagated by cuttings in any common soil, not over moist.

The few ligneous or suffruticose hardy plants contained in this order are included in the genera *S*olànum, *Ly*́cium, and Crabówski*a*, which are thus characterised: —

Sola`num *Pliny.* Anthers connivent, dehiscing by pores at the apex. Berry 2-celled, rarely 4-celled.

Ly'cium *L.* Anthers usually exserted, and not connivent, opening lengthwise. Berry 2-celled.

Crabo'wski*a* Schlecht. Drupe containing two 2-celled bony carpels. Cells 1-seeded.

### Genus I.

SOLA`NUM *Tourn.* The Nightshade. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Tourn. Inst., p. 149. t. 62.; Lin. Gen., No. 251.; Don's Mill., 4. p. 400.
*Synonymes. Melongèna* Tourn. Inst. p. 151. t. 65.; Pseùdo-Cápsicum *Mœnch Meth.* p. 476.; Nyctèrium *Vent. Jard. Malm.* p. 85.; Aquártia Jacq. Amer. p. 15. t. 12.; Morelle, *Fr.*; Nachtschatten, *Ger.*; Solano, *Ital.*
*Derivation.* The first use of the word *Solanum* occurs in the writings of Tragus, who applied it to Chenopòdium hýbridum. It is said to be derived from *solari*, to console. The Greeks called our European solanums *struchnoi*, a name which Linnæus transferred to the genus of tropical shrubs, *S*trýchnos, to which the nux vomica belongs.

*Gen. Char., &c. Calyx* permanent, 5-, rarely 4-, cleft. *Corolla* rotate, rarely campanulate, 5-, rarely 4-, cleft. *Anthers* oblong, connivent, opening by 2 pores at the apex. *Berry* almost globose, 2—3—4-celled, but usually 2-celled. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous or sub-evergreen; undivided, sinuated, lobed, imparipinnate, or decompound. *Flowers* in peduncles, solitary or numerous, simple or multifid, axillary or extra-axillary.—Shrubs,

suffrutescent, scandent, deciduous or sub-evergreen ; natives of Europe, Asia, or South America ; of the easiest culture in common soil.

1. *S.* DULCAMA'RA *L.* The Bitter-sweet, *or woody*, Nightshade.

*Identification.* Lin. Sp , p. 264. ; Don's Mill., 4. p. 409.
*Synonymes.* *S.* scándens *Neck. Gallo-Bel.* 119. ; Dulcamàra flexuòsa *Mœnch Meth.* p. 514. ; *S.* scándens seu Dulcamàra *Tourn. Inst.* p. 149. ; Amàra dúlcis *Gerard Emac.* 350. ; Dúlcis amàra *Trag.* 816. ; Glycýpicros seu Dulcamàra *Bauh. Hist.* 2. p. 109. icon. ; la Morelle grimpante, *Régnault Bot. Icon.*
*Engravings.* Eng. Bot., t. 565. ; Baxt. Brit. Fl. Pl., vol. 2. t. 110. ; and our *fig.* 1290.

*Spec. Char., &c.* Shrubby, scandent, flexuous. Leaves ovate-cordate; superior ones hastate. Corymbs almost opposite the leaves. Shrub glabrous. Leaves cordate ; superior ones hastate, all quite entire. Corymbs panicled. Corolla violet-coloured, with reflexed segments, each segment furnished with 2 green spots at the base. Berries elliptic, red. (*Don's Mill.*) A climbing deciduous shrub. Europe, Asia, and North America, in hedges and among bushes; plentiful in Britain. Stem 6 ft. to 8 ft. Flowers violet; June and July. Berry red ; ripe in September.

*Varieties.*

- S. *D.* 1 *violàcea* Hort. Eyst. p. 385. t. 384. No. 3. — Corollas violet.
- S. *D.* 2 *álba* Lin. Fl. Suec. p. 66. — Corollas white. Lodd.
- S. *D.* 3 *cárnea* Cels. Ups. 32. — Corollas flesh-coloured.
- S. *D.* 4 *plèna* Tourn. Inst. 149. — Corollas double.
- S. *D.* 5 *variegàta* Munt. fig. 156. — Leaves variegated.
- S. *D.* 6 *hirsùta* Don's Mill. iv. p. 409. ; *S.* littoràle *Hort.*—Plant hairy or downy. Flowers violet. Found on the sea coast. Lodd.
- S. *D.* 7 *rupéstris* Schmidt Fl. Boh. p. 69.—Stem erect. Leaves ovate, quite entire. Racemes few-flowered, dichotomous. Bohemia.

The stems of this species are roundish, branched, twisted, and climbing by elongation, among other shrubs, and in hedges, to the height of 6 or 8 feet, or upwards. When bruised, broken, or rubbed, they yield a strong and peculiar odour, not unlike that which proceeds from rats and mice. The roots smell like potatoes ; and both roots and stalks, upon being chewed, first cause a sensation of bitterness, which is soon followed by a considerable degree of sweetness, whence the specific name. The berries are poisonous ; and, as they are common in hedges, they are very frequently eaten by children, on whom they operate by exciting violent vomiting and purging. Trained to a single stem to the height of 6 or 8 feet, and supported by a strong iron rod, with a parasol top, this common hedge weed might form a very handsome gardenesque pendulous tree ; or it might cover a domical bower.

1290. *S.* Dulcamàra.

2. *S.* CRI'SPUM *R. & S.* The curled-*leaved* Solanum.

*Identification.* Rœm. et Schult. Sp. Pl., 4. p. 595. ; Don's Mill., 4. p. 414.
*Engravings.* Bot. Reg., t. 1516. ; and our *fig.* 1291.

*Spec. Char., &c.* Stem shrubby. Leaves ovate, subcordate, wavedly curled, acuminate. Flowers corymbose. (*Rœm. et Schult.*) Leaves all simple, undivided, ovate, or cordate, acuminate, petiolate, slightly curled at the margin ; younger leaves powdery, but full-grown ones green. Cymes many-flowered, terminal, all the parts powdery. Bracteas none. Calyx short, 5-toothed. Corolla middle-sized, of a bluish lead-colour. Anthers equal, yellow. (*Lindl.*) A large sub-evergreen rambling shrub. Chiloe, in waste places and hedges. Height 15 ft. to 30 ft. Introduced in 1830. Flowers bluish coloured ; May to September.

A hardy vigorous-growing plant, of a much more ligneous character than *S.* Dulcamàra, sub-evergreen, and covered with flowers nearly the whole summer. As it will grow in any soil, and is readily propagated by cuttings, it promises to be of great value as an ornamental climber, for rapidly covering naked walls. If tied to a stake, and thus forced to grow erect, it will throw out a great number of lateral branchlets, at the end of every one of which is produced a bunch of flowers.

The art of hybridisation has not yet been practised with the shrubby species of *S*olànum, otherwise it is not improbable that some hybrids might be originated between the South American and the British species, which would be as hardy as those which have been described.

1291. *S. crispum.*

## Genus II.

### *LY'CIUM L.* The Box Thorn. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Lin. Gen., 1262.; Don's Mill., 4. p. 457.
*Synonymes.* Jasminöides *Niss.* in *Act. Gall.* 1711.; Matrimony Vine, *Amer.*; Lycien, *Fr.*; Bocksdorn, *Ger.*; Licio, *Ital.* One species, *L.* bárbarum, is commonly called the Duke of Argyll's tea tree, from the circumstance of a tea plant (*Thèa* víridis) having been sent to the Duke of Argyll at the same time as this plant, and the labels having been accidentally changed.
*Derivation.* Derived from *Lycia*, in Asia Minor; hence the *lukion* of Dioscorides; a name given by him to a thorny shrub, which was supposed by Dr. Sibthorp to have been the *R*hámnus infectòrius, but which Dr. Royle, with greater probability, regards as identical with a species of *Bérberis* which he has denominated *Bérberis L*ycium.

*Gen. Char. Calyx* urceolate, regularly 5-toothed, or irregularly 3—5-cleft, permanent. *Corolla* funnel-shaped or tubular; limb 5- or 10-cleft, or toothed, imbricate in æstivation, sometimes plicate. *Stamens* 5, usually exserted; filaments bearded, and widened at the base. *Anthers* cordate, dehiscing lengthwise. *Berry* roundish, 2-celled. *Seeds* numerous, reniform. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous; entire or nearly entire, solitary or in fascicles. *Flowers* in peduncles, extra-axillary or terminal, solitary, twin, or umbellate, rarely corymbose; white, yellow, rose-coloured, purple, or blue.—Shrubs, deciduous, scandent, and usually somewhat spinose; natives of Europe, Asia, and Africa; readily propagated by cuttings of the branches or of the roots.

#### ♃ 1. *L.* europæ'um *L.* The European Box Thorn.

*Identification.* Lin. Syst., 228.; Don's Mill., 4. p. 458.
*Synonymes. L.* salicifòlium *Mill. Dict.* No. 3.; Jasminöides aculeàtum *Mich.*; Spino santo, Spino di Cristo, *Ital.*
*Engravings.* Mich. Gen., t. 105. f. 1.; Mill. Icon., t. 171. f. 2.; and our *fig.* 1292.

*Spec. Char., &c.* Branches erect, loose. Buds spinescent. Leaves fascicled, obovate-lanceolate, obtuse, or spathulate, bent obliquely. Flowers twin or solitary. Corolla funnel-shaped. Stamens exserted, but shorter than the limb. Calyx 5-cleft, ruptured at the side. Corollas pale violet, reticulated with red veins; tube greenish. (*Don's Mill.*) A rambling shrub, with long slender shoots, and prone to throw up innumerable suckers. South of Europe. Stem 20 ft. to 30 ft. Introduced in 1730. Flowers violet; May to August. Fruit bright scarlet or yellow; ripe in September.

1292. *L.* europæ'um.

Valuable for covering naked walls, as it grows with extreme rapidity, and flowers and fruits freely, in almost any soil or situation. Established plants, in good soil, will make shoots 10 or 12 feet in length in one season; and the plant, when trained against a house or high wall, will reach the height of 30 or 40 feet, as may be seen in some courts in Paris. Trained to a strong iron rod, to the height of 20 or 30 feet, and then allowed to spread over an umbrella head, it would make a splendid bower. Its shoots would hang down to the ground, and form a complete screen on every side, ornamented from top to bottom with ripe fruit, which is bright scarlet or yellow, and very showy; with unripe fruit, which is of a lurid purple; or with blossoms, which are purple and white. Some idea of the quantity of ripe and unripe fruit, and of blossoms, which may be found on a shoot at one time, may be formed from *fig.* 1292., which is only a portion of a shoot, the upper part of which (not exhibited in the figure) contained two or three dozen of fruit, all ripe at once.

*Varieties.* There is a variety with yellow fruit, and another with the fruit roundish; and, in our opinion, *L.* bárbarum, chinénse, ruthénicum, Sháwi, and Trewiànum, all of which we have seen in Loddiges's arboretum, and in the Paris gardens in 1840, are nothing more than variations of the same form.

♃ 2. *L.* (E.) BA'RBARUM *L.* The Barbary Box Thorn.

*Identification.* Lin. Sp., 277.; Don's Mill., 4. p. 458.
*Synonymes.* *L.* halimifòlium *Mill. Dict.* No. 6.; *L.* bárbarum α vulgàre *Ait. Hort. Kew.* 1. p. 257.; the Duke of Argyll's Tea Tree.
*Engravings.* Dend. Brit., t. 9.; and our *fig.* 1293.

*Spec. Char., &c.* Branches dependent. Buds spiny. Leaves lanceolate, flat, glabrous, acute. Flowers twin, extra-axillary, pedicellate. Corolla funnel-shaped. Stamens exserted, about equal in length to the limb. Branches angular. Buds often without spines. Calyx 2—3-lobed. Corolla with a purple limb, and yellowish base. Stigma 2-lobed. Berry ovate, yellow. Stamens bearded near the base. There is a variety of this, having livid or pale corollas, and reddish yellow berries. (*Don's Mill.*) A climbing deciduous shrub. North of Asia, Africa, and South of Europe. Stem 20 ft. to 30 ft. Introduced in 1696. Flowers and other particulars as in *L.* europæ'a.

1293 *L.* (E.) bárbarum

☆ ♃ 3. *L.* (E.) CHINE'NSE *Mill.* The Chinese Box Thorn.

*Identification.* Mill. Dict., No. 5.; Don's Mill., 4. p. 458.
*Synonymes.* *L.* bárbarum β chinénse *Ait. Hort. Kew.* 1. p. 257.; *L.* bárbarum *Lour. Coch.* 1. p. 165.?; *L.* ovàtum *N. Du Ham.* 1. p. 107.
*Engravings.* Dend. Brit., t. 8.; and our *fig.* 1294. from the N. Du Ham., and *fig.* 1295. from a living specimen.

*Spec. Char., &c.* Branches pendulous, prostrate, striated. Buds spinescent. Leaves by threes, ovate, acute,

1294. L. (e.) chinénse.

attenuated at the base. Peduncles much longer than the calyx, which is entire. Stamens exserted. Nearly allied to *L.* ruthénicum; but differs in the leaves being broad-ovate. Shoots very long. (*Don's Mill.*) A climbing deciduous shrub. China, about Pekin and Canton; and of Cochin-China. Stem 8 ft. to 10 ft. Introduced ?. Flowers purple; May to August. Fruit orange-coloured; ripe in August.

Resembles *L.* europæ'um, but is a smaller weaker plant.

1295 L. (e.) chinénse.

### ♃ 4. *L.* (E.) TREW*IA'NUM* G. Don. Trew's Box Thorn.

*Identification.* Don's Mill., 4. p. 458.; Lodd. Cat., ed. 1836.
*Synonymes.* *L.* bárbarum *Lam. Dict.* 3. p. 509., ex *Poir. Suppl.* 3. p 427.; *L.* chinénse *N. Du Ham.* 1. p. 116.
*Engraving.* Our *fig.* 2102. in p. 1110.

*Spec. Char., &c.* Branches diffuse, angular. Buds spinose. Leaves petiolate, lanceolate, acute. Peduncles 1-flowered, solitary or twin, extra-axillary. Calyx 2—3-cleft. Corolla funnel-shaped. Stamens exserted. This species differs from *L.* chinénse *Mill.* in the spines, and from *L.* bárbarum in the leaves. Branches rufescent. Spines few. Corolla fine purple, with a white star in the centre. Filaments pilose at the base. Berry ovate. (*Don's Mill.*) A climbing deciduous shrub. China. Stem 6 ft. to 10 ft. Introduced in 1818. Flowers purple; May to August.

Judging from the plants in the Hackney arboretum, this kind is scarcely, if at all, different from *L.* europæ'um.

### ♃ 5. *L.* (E.) RUTHE'NICUM *Murr.* The Russian Box Thorn.

*Identification.* Murr. Comm. Goett., 1779, p. 2. t. 2.; Don's Mill., 4. p. 458.
*Synonymes.* *L.* tatáricum *Pall. Fl. Ross.* 1. p. 78. t. 49.; Lycien de la Russie, *Fr.*
*Engravings.* Murr. Comm. Goett. 1779, p. 2. t. 2.; and our *fig.* 1296.

*Spec. Char., &c.* Branches dependent. Buds spinescent. Leaves linear-lanceolate, fleshy, obtuse, attenuated at the base, solitary, or sub-fasciculate. Peduncles longer than the calyx. Calyx with 5 unequal teeth. Stamens exserted, equal to the limb. Calyx usually irregularly 5-toothed, rarely 2—3-lobed, as in *L.* bárbarum. Corolla with a white tube and purplish limb. Leaves grey, like those of *L.* àfrum. (*Don's Mill.*) A climbing deciduous shrub. Siberia, in nitrous places; on the Wolga, and in Hyrcania. Stem 6 ft. to 10 ft. Introduced in 1804. Flowers white; June to August.

*Variety.*

♃ L. *r.* 2 *cáspicum* Pall. Fl. Ross. t. 49. f. A. — Leaves shorter. Buds more spinose. Flowers smaller. Native about the Caspian Sea.

1296 L. (e.) ruthénicum.

♣ 6. *L.* (E.) LANCEOLA'TUM *Poir.* The lanceolate-*leaved* Box Thorn.

*Identification.* Poir. Suppl., 3. p. 429.; Don's Mill. 4. p. 458.
*Synonyme.* *L.* europæ'um β *Dec. Fl. Fr.* No. 2699.
*Engravings.* N. Du Ham., t. 32.; and our *figs.* 1297. and 1298.

*Spec. Char., &c.* Branches dependent, reflexed. Buds spinescent. Leaves lanceolate, nearly sessile, acute at both ends. Flowers solitary, extra-axillary, pedicellate. Corolla funnel-shaped. Stamens exserted. Calyx unequally 5-toothed. Corolla purple, with a white bottom. Berry oblong, red. (*Don's Mill.*) A climbing deciduous shrub. Naples, Greece, &c. Stem 6 ft. to 10 ft. Introduced ?. Flowers purple; May to August. Berry red; August.

1297. *L.* (e.) lanceolàtum.

1298 *L.* (e.) lanceolàtum.

♣ 7. *L.* (? E.) TURBINA'TUM *Du Ham.* The turbinate-*fruited* Box Thorn.

*Identification.* N. Du Ham., 1. p. 119. t. 31.; Don's Mill., 4. p. 458.
*Synonymes.* *L.* halimifòlium *Mill. Dict.* No. 6. ?; *L.* bárbarum β *Dec. Fl. Fr.* No. 2700.
*Engravings.* N. Du Ham., t. 31.; and our *figs.* 1299. and 1300.

*Spec. Char., &c.* Stems erect, fascicled. Branchlets dependent, terete. Buds spiny. Leaves sessile, lanceolate, acuminated. Flowers aggregate, pedicellate, extra-axillary. Corolla funnel-shaped. Stamens exserted. Calyx trifid. Berry red, and turbinate. Corolla violaceous, with a white bottom. (*Don's Mill.*) A climbing deciduous shrub. China. Stem 6 ft. to 10 ft. Introduced in 1709. Flowers violet; May to August.

1299. *L* (?e.) turbinàtum.

1300. *L.* (? e.) turbinàtum.

♣ 8. *L.* A'FRUM *L.* The African Box Thorn.

*Identification.* Lin. Sp., 277.; Don's Mill., 4. p. 459.
*Engravings.* Bot. Reg., t. 354.; and our *figs.* 1301. and 1302.

*Spec. Char., &c.* Erect, spiny. Leaves fascicled, linear, canescent, attenuated at the base, obtuse, fleshy. Flowers almost axillary, solitary, drooping. Corolla tubular, 3 times longer than the calyx. Stamens enclosed. Bark grey-coloured; the smaller branches frequently spiny. Leaves glaucous. Filaments bearded near the base, as in all the true species. Stigma slightly 2-lobed. Corolla violaceous, rich purple above. Berry globose, violaceous. Calyx 5-toothed. (*Don's Miller.*) An erect, spiny, deciduous or sub-evergreen shrub. Spain, North of Africa, Palestine, Syria, Egypt, and Arabia Felix. Height 6 ft. to 10 ft. Introduced in 1712. Flowers purple; May to July. Berry dark blue or black; ripe in August.

1301.

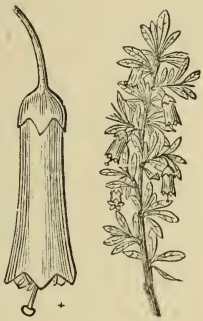
1302. *L.* àfrum.

*Variety.*

♣ L. *a.* 2 *rígidum.* *L.* rígidum *Booth.* — Leaves long, linear, glaucous; shoots rigid. Possibly a distinct species. Native country unknown, but probably from China, or the North of India. Received from Messrs. Booth, in 1838.

The most ornamental species of the genus; and, though rather tender, it

well deserves a place in every collection against a wall. There are large and handsome plants, on a wall, in the Chelsea Botanic Garden, which were uninjured by the winter of 1837–8.



303. L. obovàtum.

*Other Species of* Lýcium. — There were in the Horticultural Society's Garden, in 1838, plants named L. *ovàtum* and L. *spatulàtum*, but they appear to us nothing more than varieties of *L.* bárbarum.—L. *obovàtum* (*fig.* 1303. from a specimen received from the Liverpool Botanic Garden) was raised there from a seed which Mr. Shepherd picked from a dried specimen received from Peru in 1836. The flowers are of a dark purple and very showy, and the plant has stood against a south wall through the winters of 1837, 38, and 39, without any protection.

## Genus III.

CRABO'WSKIA Schlecht. The Crabowskia. *Lin. Syst.* Pentándria Monogýnia.

*Identification.* Schlecht. in Linnæa, 7. p. 72. ; Don's Mill., 4. p. 480.
*Synonymes.* Lýcium sp. *Lin.* ; Ehrèt*ia* sp. *L'Hérit.*
*Derivation.* In honour of *Dr. H. Crabowski*, one of the editors of *Flora Silesiaca*.

*Gen. Char.* *Calyx* subcampanulate, regularly 5-toothed, valvular in æstivation. *Corolla* with a short, funnel-shaped tube, and a 5-parted limb. *Segments* of the limb spreading or reflexed, four of which are convolute in æstivation, the fifth external, with the margins covering the edges of those near it. *Stamens* 5. *Filaments* free. *Drupe* propped by the permanent calyx. (*Don's Mill.*)

*Leaves* simple, alternate, exstipulate, deciduous ; entire. *Flowers* subcorymbose, from the fascicles of leaves, or the tops of the branchlets ; whitish yellow.—A shrub, deciduous, with axillary spines, rambling, with the habit of *L*ýcium ; native of Peru. Culture as in *L*ýcium.

♃ 1. C. BOERHAAV*IÆFO`LIA* Schlecht. The Boerhaavia-leaved Crabowskia.

*Identification.* Schlecht. in Linnæa, 7. p. 72. ; Don's Mill., 4. p. 480.
*Synonymes.* Lýcium boerhaav*iæfòlium* Lin. Suppl. p. 150. ; Ehrèt*ia h*alimifòlia *L'Hérit. Stirp.* 1. p. 45. t. 83. ; Lýcium heterophýllum *Murr. Comm. Gött.* 1783 p. 6. t. 21. ; Jasminöïdes spinòsum *Du Ham. Arb.* 1. p. 306. No. 5. ; Lycium paniculé, *Fr.*
*Engravings.* L'Hérit. Stirp., 1. t. 83. ; and our *fig.* 1304.

*Spec. Char., &c.* Leaves coriaceous, glaucescent, with a saltish bitterish taste. Corolla white, having the throat veined with green. Stamens white. Stigma green. Nuts the form of those of *Coffèa* arábica, convex on one side, marked by a slender furrow in the middle, obtuse at top, and perforated by two roundish holes at the base : hence it is tridentate, the first tooth from the middle of the back, the other two from the sides : sometimes, but only by abortion, 1-celled. Albumen copious, fleshy. (*Don's Mill.*) A rambling deciduous shrub. South of Brazil, in woods. Height 6 ft. Introduced in 1780. Flowers white ; April and May

1304. C boerhaaviæfòlia.

The whole plant has a mealy white appearance ; by

which, and by the singular twisted form of its leaves, it may be known at first sight from any species of *Lýcium*.

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## Order LIV. SCROPHULARIA'CEÆ.

*Ord. Char.* *Calyx* 4—5-parted, persistent. *Corolla* deciduous, irregular, or bilabiate, or regular ; æstivation imbricate. *Stamens* 2 or 4, usually didynamous, rarely equal. *Ovarium* 2-celled. *Style* 1. *Stigma* 2-lobed or undivided. *Fruit* usually capsular, rarely baccate, 2-celled, 2—4-valved many-seeded. *Albumen* copious. (*G. Don.*)

*Leaves* simple, opposite, exstipulate, deciduous ; reticulately veined.

The hardy genera in British gardens are Búddle*a* and Paulòwn*ia*, which are thus contradistinguished : —

Bu'ddle*a*. Calyx 4-cleft. Corolla tubular, 4-cleft, regular. Stamens 4, equal.
Paulo'wn*ia*. Calyx 5-cleft. Corolla sub-bilabiate, 5-cleft. Stamens 4, didynamous.

### Genus I.

### BU'DDLE*A* L. The Buddlea. *Lin. Syst.* Tetrándria Monogýnia.

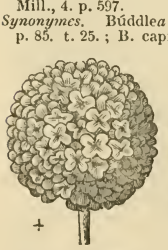
*Identification.* Lin. Gen., No. 140. ; Don's Mill., 4. p. 596.
*Derivation.* Named by Dr. Houston in honour of *Adam Buddle*, a botanical amateur, who is often mentioned in Ray's *Synopsis*, and whose dried collection of British plants is preserved in the British Museum.

*Gen. Char., &c.* *Calyx* 4-cleft, equal. *Corolla* tubular ; limb 4-cleft, regular. *Stamens* 4, equal, enclosed. *Stigma* capitate or clavate. *Capsule* 2-celled, 2-valved ; valves bifid. *Placenta* central, at length free.

*Leaves* as in the Order. *Flowers* terminal ; capitate, spicate, or panicled ; orange - coloured. — Shrubs, deciduous or nearly sub-evergreen, rambling, usually with quadrangular branches, natives of South America. Readily propagated by cuttings or layers, in any light rich soil, in a dry sheltered situation, or, in the North of England, against a wall.

1. B. globo'sa *L.* The Globe-*flowered* Buddlea.

*Identification.* Ait. Hort. Kew., 1. p. 150. ; Don's Mill., 4. p. 597.
*Synonymes.* Búddle*a* globiflòra *N. Du Ham.* 1. p. 85. t. 25. ; B. capitàta *Jacq. Col.* 2. p. 332. ; *Icon. Rar.* t. 307. ; *Pálquin* Feuillée It., 3. p. 51. t. 38. ; Buddleia globuleux, *Fr.* ; Kopftragende Budleje, *Ger.*
*Engravings.* Bot. Mag., t. 174. ; N. Du Ham., 1. p. 85. ; and our *figs.* 1305. and 1306.



1305. B. globòsa.

*Spec. Charac., &c.* Branches tetragonal, clothed with hoary tomentum,

1306. B. globòsa.

as well as the under sides of the leaves. Leaves lanceolate, acuminated, crenated, petiolate. Heads of flowers globose, pedunculate. A large, spreading, deciduous shrub. Chili. Height 12 ft. to 15 ft. Introduced in 1774. Flowers bright yellow, in globe-like heads, fragrant; May to July.

Very ornamental, but, being somewhat tender, it requires, north of London, a warm sheltered situation, and a dry soil.

## Genus II.

### PAULO'WNIA Sieb. The Paulownia. *Lin. Syst.* Didynàmia Angiospérmia.

*Identification.* Sieboldt Fl. Jap., t. 10.
*Synonymes.* Bignònia Thun. Fl. Jap. p. 252., Willd. Sp. Pl. 3. p. 290., Pers. Syn. 2. p. 170.; Incarvíllea Spreng. Syst. Veg. 2. p. 836.; Kirri, *Japanese*, Kæmpf. Amœn. p. 152.; Too, Hak-too, *Chinese.*
*Derivation.* Named by Dr. Sieboldt in honour of Her Imperial and Royal Highness, the Hereditary Princess of the Netherlands.

*Gen. Char., &c.* *Calyx* campanulate, 5-cleft. *Corolla* tubularly campanulate, with a 5-cleft sub-labiate limb. *Stamens* 4, didynamous. *Stigma* truncate. *Capsule* woody, 2-celled, 2-valved. *Valves* septicidal. *Seeds* numerous, each surrounded by a wing, attached to a fixed placenta on the back of the dissepiment. *Albumen* fleshy. (*Sieb.*)

*Leaves* simple, opposite, exstipulate, deciduous; petiolate, entire. *Flowers* purple or lilac, in terminal panicles.— A deciduous tree, with the habit and general appearance of *Catálpa syringæfòlia*; native of Japan.

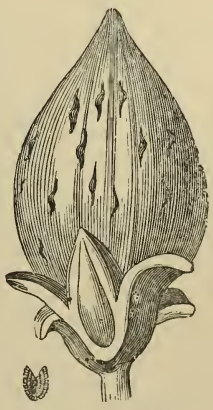
♃ 1. P. imperia'lis *Sieb.* The imperial Paulownia.

*Identification.* Sieb. Fl. Jap., t. 10.
*Synonymes.* Bignònia tomentòsa *Thun. Fl. Jap.* p. 252., *Willd. Sp. Pl.* 3. p. 290., *Pers. Syn.* 2. p. 170.; Incarvíllea tomentòsa *Spreng. Syst. Veg.* 2. p. 836.; Kirri, *Japanese*, Kæmpf. Amœn. p. 859.,; Too, Hak-too, *Chinese.*
*Engravings.* Kæmpf. Amœn., fig. in p. 860.; Fl. Jap., t. 10.; and our *figs.* 1307. and 1308.

*Spec. Char., &c.* Leaves ovate, cordate at the base, acute, undivided or 3-lobed, densely clothed with soft hairs beneath. Flowers panicled; calyx covered with rusty tomentum. (*Sieb.*) A magnificent deciduous tree; Japan, in the southern provinces, in exposed places. Height 30 ft. to 40 ft., with a trunk 2 ft. to 3 ft. in diameter, in Japan. Introduced in 1840. Flowers purplish; April, in Japan.

1307. P. imperiàlis.

The branches are few, but strong, and proceeding from the trunk at right angles. The flowers are in large bunches, which look, at a distance, like those of the horse-chestnut; while the individual flowers, in form, size, and colour, resemble those of Digitàlis purpùrea. The tree was introduced into Europe in 1837, and in the Jardin des Plantes there is a specimen which has stood out three winters. In July, 1840, it was nearly 12 ft. high, and in


1308. P. imperiàlis

all respects closely resembled a catalpa. It is readily propagated by cuttings of the roots or shoots; flowers vigorously in any common soil, tolerably dry, and will doubtless speedily become as common as the catalpa throughout Europe. Horticultural Society's Garden.

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## Order LV. LABIA'CEÆ.

*Ord. Char. Calyx* tubular, persistent, 5-cleft or 5—10-toothed, regular, or bilabiate. *Corolla* tubular, bilabiate; the upper lip undivided or bifid, and the lower one trifid. *Stamens* 4, didynamous, 2 of which are often sterile, inserted under the sinuses of the lower lip. *Lobes* of anthers usually divaricated. *Ovaria* 4, naked, seated on a glandular disk, and connected with the base of the style. *Stigma* bifid. *Achenia* 4, or fewer. *Albumen* wanting, or sparing. — The opposite leaves, free 4-lobed ovarium, bilabiate corolla, and didynamous stamens distinguish this order from *B*oragíneæ; and the 4-lobed ovarium separates it from *V*erbenàceæ and *A*canthàceæ, &c. (*G. Don.*)

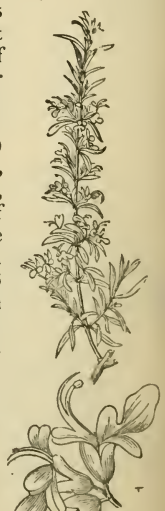
*Leaves* simple, alternate, exstipulate, evergreen; small, crowded. *Flowers* axillary or terminal. — Low shrubs, for the most part so small as to be treated as herbaceous plants; natives chiefly of the South of Europe.

Though there are a number of genera belonging to this order containing species which are technically ligneous, yet there are none that can popularly be considered as shrubs fit for an arboretum, with the exception of *P*hlòmis fruticòsa, *R*osmarìnus officinàlis, *L*avándula *S*pìca, and *S*álvia officinàlis; these plants are so well known, that we consider it unnecessary to do more than give figures of them, with the following slight notices: —

309. Phlòmis fruticòsa.

*Phlòmis fruticòsa* L (N. Du Ham., 6. t. 40.; Bot. Mag., t. 1843.; and our *fig.* 1309.), Jerusalem Sage, is a native of Spain, with yellow flowers, appearing in June and July. This is a greyish evergreen shrub, growing 4 or 5 feet high, and, in dry soils, enduring 10 or 12 years. The flowers are produced in large whorls, and have a very conspicuous appearance. The plant well merits a place in collections, on account of the remarkable appearance of its foliage, independently altogether of its flowers.

*Rosmarìnus officinàlis* L. (Fl Græc., 1. t. 14.; and our *fig.* 1310.) is a well-known evergreen shrub, a native of the South of Europe, which has been an inhabitant of our gardens since 1548. There are plants of it in different gardens in the neighbourhood of London, which, as bushes in the open border, in 5 or 6 years have attained the height of as many feet, and breadth in proportion; thus forming very handsome evergreen bushes. As the plant flowers from January to April, it forms, when so treated, a very desirable garden ornament. There are, also, a variety with the leaves variegated with gold colour, and a silvery-leaved variety; but these are often rather weaker, and more dwarf, than the species.



1310. *R.* officinàlis.

*Lavándula Spìca* L. (N. Du Ham., 3. t. 42.; and our *fig.* 1311.), the common Lavender, is a well-known fragrant shrub, a native of the South of Europe and North of Africa, which like the rosemary, has been long an inhabitant of British gardens. In deep, dry, calcareous soils, it will grow to the height

of 3 ft., and form a compact hemispherical bush, flowering abundantly every year The flowers are generally purple, but there is a variety with white flowers; and L. *latifòlia* Ehrh., which is not uncommon in gardens, and which has lilac flowers, though treated by some as a species, is probably nothing more than another variety.

1311. Lavándula Spica.

1312. Sálvia officinàlis.

♃ *Sálvia officinàlis* L. (N. Du Ham., 6. t. 25.; and our *fig.* 1312.) is a well-known suffruticose plant, which, though seldom seen above 2 ft. in height, yet, in deep sandy soil, will grow to the height of 5 or 6 feet, and produce a stem as thick as a man's leg. It is a native of the South of Europe, and has been known in British gardens from time immemorial, and when grown in masses, and abounding in racemes of flowers, it is very ornamental.

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## Order LVI. VERBENA`CEÆ.

*Ord. Char.* *Calyx* tubular, persistent. *Corolla* tubular, deciduous, irregular. *Stamens* 2 or 4; when 4, didynamous, rarely equal. *Ovarium* 2—4-celled. *Style* 1. *Stigma* bifid or undivided. *Fruit* drupaceous or baccate. *Albumen* wanting or very sparing. (*G. Don.*)

*Leaves* simple, opposite, stipulate, deciduous; digitate. *Flowers* terminal. — Shrubs, deciduous; natives of the South of Europe. Propagated by seeds, cuttings, or layers, in common soil.

### Genus I.

VI`TEX *L.* The Chaste Tree. *Lin. Syst.* Didynàmia Angiospérmia.

*Identification.* Lin. Gen., No. 790.; N. Du Ham., 6. p. 115.
*Synonymes.* Gatilier, *Fr.*; Kenschbaum, *Ger.*; Vitice, *Ital.*
*Derivation.* From *vico*, to bind, as with an osier; in reference to the flexibility of the shoots.

*Gen. Char., &c.* *Calyx* short, 5-toothed. *Corolla* bilabiate; upper lip bifid, lower one trifid; middle segment of the lower lip the largest. *Stamens* 4, didynamous, ascending. *Stigma* bifid. *Drupe* containing a 4-celled nut. *Cells* 1-seeded.

*Leaves* as in the Order. *Flowers* in terminal racemes, panicled, bluish white. — Shrubs, deciduous, natives of the South of Europe.

♃ 1. *V. A'gnus ca'stus L.* The *officinal, or true,* Chaste Tree.

*Identification.* Lin. Sp., 890.; Lam. Dict., 2. p. 611.
*Synonymes.* Elеágnum Theophrásti Lob. Icon. 2. 138.; *A'gnus cástus Blackw.*; *Piper agréstis Gerard*; Arbre au Poivre, Poivre sauvage, *Fr.*; Pepe di Monaci, *Ital.*
*Engravings.* Blackw. Herb., t. 129.; N. Du Ham., 6. t. 35.; and our *fig.* 1313.

*Spec. Char., &c.* Leaves opposite, digitate, 7—5-lobed: leaflets lanceolate, mostly quite entire, hoary beneath. Racemes terminal, panicled. Flowers verticillate. (*Willd.*) A low deciduous shrub. Sicily, Naples, the North of

1313. *V. A'gnus cástus.*

Africa, and Egypt. Height 5 ft. to 6 ft. Introd. 1570. Flowers white, bluish white, or reddish white ; Sept.

*Variety.*

V. A. 2 *latifólia* Mill. (N. Du Ham., vi. p. 116.) has the leaflets broader and shorter than those of the species. The spikes of flowers are shorter, and the flowers are always blue. South of France and Italy.

Its flowers have an agreeable odour ; but the leaves have an unpleasant smell, although aromatic. No seeds are produced in England. The plant grows freely in any soil that is tolerably dry; and it is readily propagated by cuttings, put in in autumn, and protected with a hand-glass. In the Paris nurseries it is frequently raised from seeds received from Italy, and both in France and England the plant sometimes produces suckers.

2. *V.* (*A.*) INCI'SA *Lam.* The cut-*leaved* Chaste Tree.

*Identification.* Lam. Dict., 2. p. 612. ; Willd. Sp., 3. p. 392. ; N Du Ham., 6. p. 116.
*Synonyme.* *V. Negúndo* Bot. Mag. t. 364.
*Engravings.* Bot. Mag., t. 364. ; and our *fig.* 1314.

1314. *V.* incisa.

*Spec. Char., &c.* Leaves digitate, composed of five leaflets, subpinnatifid. (*Lam.*) A deciduous shrub. China. Height 4 ft. to 5 ft. Introduced in 1758. Flowers bluish, purplish, or whitish ; July to September.

This supposed species, though not common in British gardens, is quite hardy in the Jardin des Plantes, where it grows with great vigour, and flowers profusely. Distinguished at a glance from the preceding and following species, by its long linear fine deep green leaflets.

3. *V.* ARBO'REA *Rox.* The arboreous Chaste Tree.

*Identification.* Rox. Flor. Ind., vol. 3. p. 73. ; Royle Illust., vol. 1. p. 292.
*Engravings.* Our *fig.* 1315. from a living specimen in the Jardin des Plantes.

1315. *V.* arbòrea.

*Spec. Char., &c.* Leaves digitate ; leaflets ovate, acuminate, dentate. A large shrub ; in its native country a small tree. India. Height 30 ft. ; in the Paris Garden 5 ft. Introduced ?. Flowers purplish ; July and August.

Readily known from the preceding sorts by its much broader leaves, shorter, and of a paler green. According to Royle, this species in the Himalayas yields a hard and durable timber, much used and esteemed. The plant, in the Paris Garden, grows with great vigour, and is quite hardy, but does not flower freely.

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## SUBDIVISION II. MONOCHLAMY'DEÆ.

*Perianth simple.*

## ORDER LVII. CHENOPODIA'CEÆ.

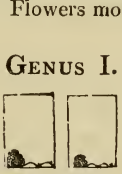
*ORD. CHAR.* *Perianth* deeply divided, and persistent ; æstivation imbricate. *Stamens* equal in number to the divisions of the perianth, or opposite them,

or fewer, inserted in the bottom of the perianth. *Ovarium* 1-seeded, usually free. *Style* 2—4-cleft, rarely simple. *Stigmas* undivided. *Pericarp* membranous, valveless, seldom baccate. *Embryo* inarching a farinaceous albumen, or spiral or forked, without albumen.—Only distinguished from *Amaranthàceæ* in the insertion of the stamens. (*G. Don.*)

*Leaves* simple, alternate, or opposite, exstipulate, deciduous or sub-evergreen; entire or lobed. *Flowers* terminal.—Shrubs, natives of the South of Europe and North America. The genera are three, which are thus contradistinguished:—

CHENOPO'DIUM *L.* Flowers hermaphrodite.
*A'*TRIPLEX *L.* Flowers polygamous.
DIO'TIS *Schreb.* Flowers monœcious.

## GENUS I.



### CHENOPO'DIUM *L.* THE GOOSEFOOT. *Lin. Syst.* Pentándria Digýnia.

*Identification.* Lin. Gen., 121., but with some modification since.
*Synonymes.* Salsòla sp.; Anserine, *Fr.*; Gause Fuss, *Ger.*; Chenopodio, *Ital.*
*Derivation.* From the Greek words *chēn*, a goose, and *podion*, a little foot, many of the species having large angular leaves extremely like the webbed foot of a waterfowl.

*Gen. Char., &c.* *Flowers* bisexual. *Calyx* inferior, with 5 sepals, permanent. *Stamens* 5, hypogynous. *Anthers* with round lobes. *Styles* 2. *Stigmas* obtuse. *Fruit* a utricle, invested by the calyx. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous or sub-evergreen; generally lobed, bearing a friable unctuous scurf. *Flowers* axillary, in leafy spikes or naked panicles, numerous, small, green.—Shrubs, deciduous or sub-evergreen; natives of the South of Europe; of the easiest culture in any dry soil, and readily propagated by cuttings.

1. C. FRUTICO'SUM *Schrad.* The shrubby Goosefoot, *or Stonecrop Tree.*

*Identification.* Schrader, according to G. Don in Hort. Brit.
*Synonymes.* Salsòla fruticòsa *Lin. Sp. Pl.* 324.; the shrubby Glasswort; Soude en Arbre, *Fr.*; strauchartiges Salzkraut, *Ger.*; Sopravvivolo legnoso, *Ital.*
*Engravings.* Eng. Bot., t. 635.; Flor. Græc., t. 255.; and our *figs.* 1316. and 1317.

1316. C. fruticosum.

*Spec. Char., &c.* Shrubby, upright, evergreen. Leaves semicylindrical, bluntish, imbricate. (*Smith.*) A low, sub-evergreen, glaucous shrub. South of Europe, and England, on the sea coast. Height 3 ft. to 4 ft. Flowers greenish, axillary; July and August.

Not unworthy of a place in gardens or shrubberies, being sub-evergreen and tolerably hardy, remarkable for the glaucous hue of the leaves, and very durable. The branches are very brittle, and apt to break off.

1317. C. fruticòsum.

2. C. PARVIFO'LIUM *R. & S.* The small-leaved Goosefoot.

*Identification.* Rœm. et Schult. Syst. Veg., 6. p. 266.
*Synonymes.* C. fruticòsum *Bieb.* in *Fl. Taur.-Cauc.* 1. p. 181., exclusively of all the synonymes; C microphýllum *Bieb.* in *Suppl. to Fl. Taur.-Cauc.* 1. p. 275.; Salsòla fruticòsa *Bieb. Casp.* p. 149 App. No. 22., *Pall. It.* 3. p. 524.; Suaèda microphýlla *Pall. Illust.* 3. t. 44.
*Engravings.* Pall. Ill., 3. t. 44.; and our *fig.* 1318.

*Spec. Char., &c.* Imperfectly evergreen, frutescent, much-branched, spreading, glabrous, about 2 ft. high. Leaves taper, oblong, obtuse, glaucescent, fleshy;

the lower half an inch long, the floral ones shorter. Flowers of the shape of those of C. marítimum, three together, attached to the petiole above its base, not bracteated. The sepals that attend the fruit are equal and convex at the back. (*Bieb.*) A sub-evergreen shrub, frequent in plains of Eastern Caucasus, towards the Caspian Sea, and near the salt river Gorkaja, where it is believed to be deleterious to horses. Height 3 ft. Introduced in 1825, but very seldom found in collections.

1318. C. parvifòlium.

## Genus II.

### *A*'TRIPLEX *L.* The Orache. *Lin. Syst.* Polygàmia Monœcia.

*Identification.* Lin. Gen., 745.; Eng. Flor., 4. p. 255.
*Synonymes.* Arroche, *Fr.*; Melde, *Ger.*; Atriplice, *Ital.*
*Derivation.* From *ater*, black; according to some by antiphrasis, in reference to the whitish, or mealy, hue of the plants.

*Gen. Char., &c.* *Flowers* some bisexual, some female; those of both kinds upon one plant.—*Bisexual flower* with the calyx inferior, and 5 sepals. *Stamens* 5, hypogynous. *Anthers* with round lobes. — *Female flower* with the calyx inferior, deeply divided into two large, flat, equal or nearly equal, lobes. *Ovary* compressed. *Fruit* a utricle, invested by the calyx, which is now enlarged. (*G. Don.*)

*Leaves* simple, alternate or opposite, stipulate, sub-evergreen; undivided or jagged, bearing a meal-like scurf. *Flowers* in axillary or terminal spikes, numerous, small, greenish. — Shrubs, subevergreen, natives of Europe, with imperfectly woody branches, and succulent leaves, white or glaucous from being covered with a mealy powder; of easy culture and propagation in any common garden soil.

1319. *A. Hàlimus.*

1. *A. Ha*'limus *L.* The Halimus Orache, *or Tree Purslane.*

*Identification.* Lin. Hort. Cliff., 469.; Mill. Dict., No. 2.
*Synonymes.* *Hàlimus latifòlius sive fruticòsus Bauh. Pin.* 120.; *Hàlimus i. Clus. Hist.* 1. p. 53.; the broad-leaved Sea Purslane Tree; Arroche, *Fr.*; strauchartige Melde, *Ger.*
*Engravings.* Park. Theatr., 724. t. 2.; Ger. Emac., p. 522. f. 1.; and our *fig.* 1319.

*Spec. Char., &c.* Stem shrubby. Leaves alternate or opposite, their figure partaking of an oblong and a rhomb, entire. (*Willd.*) A loose, rambling, sub-evergreen, glaucous shrub. Spain, Portugal, Virginia, and Siberia. Height 5 ft. to 6 ft. Introduced in 1640. Flowers small, purplish; July and August.

The young branches are covered with a smooth white bark, which becomes grey, and peels off lengthwise, as the tree gets old. The branches are very brittle, and have but little pith. The leaves are soft, white, and silvery. It seldom flowers in Britain.

1320. *A.* portulacòïdes.

2. *A.* portulacòï'des *L.* The Purslane-like, *or shrubby*, Orache, *or Sea Purslane.*

*Identification.* Lin. Fl. Suec., 828. 919.; Eng. Flor., 4. p. 256.

*Synonymes.* *H*álimus secúndus *Clus. Hist.* 54. f.; *H.* vulgàris *Ger. Emac.* 523. f.; *H*álimus seu *P*ortulâca marìna *Bauh. Pin.* 120.; *A'*triplex marìtima, *H*álimus et *P*ortulâca marìna dìcta, angustifòlia, *Raii Syn.* 153.; the narrow-leaved Sea Purslane Tree.
*Engravings.* Eng. Bot., t. 231.; and our *fig.* 1320.

*Spec. Char., &c.* Stem shrubby, spreading. Leaves opposite, obovate-lanceolate, entire. Flowers generally unisexual; those of both sexes upon one plant. (*Smith.*) A low sub-evergreen shrub, of a silvery glaucous hue. Northern shores of Europe; and, in Britain and Ireland, occasionally found in muddy places by the sea side. Height 1 ft. to 2 ft. Flowers yellow; July and August.

The leaves are less silvery than those of the preceding species; and the whole plant much smaller.

## Genus III.

### DIO'TIS *Schreb.* The Diotis. *Lin. Syst.* Monœ'cia Tetrándria.

*Identification.* Lin. Gen. Pl., ed. Schreber, No. 1423.; Eng. Flor., 3. p. 402.
*Synonymes.* Ceratòides *Tourn.*; A'xyris *Lin.*; Ceratospêrmum *Pers.*
*Derivation.* From *dis*, twice, and *ous*, *ōtos*, an ear. The calyx of the female flower ends in two segments, which fancy may compare to ears, although they more resemble horns: and this second idea is doubtless that referred to in Tournefort's generic name Ceratòides, from *keras*, a horn, gen. *keratos*, and *eidos*, likeness.

*Gen. Char., &c.* *Flowers* unisexual.—*Male flower* with the calyx inferior, and 4 permanent petals. *Stamens* 4, inserted at the bottom of the calyx; opposite to, and prominent beyond, the sepals.—*Female flower* with the calyx inferior, deeply divided, and ending in two horns, permanent. *Fruit* a utricle, villous at the base.

*Leaves* simple, alternate, exstipulate, deciduous; lanceolate, entire, bearing hoary pubescence. *Flowers* in axillary groups, in leafy spikes, yellowish.—Shrub, deciduous, native of Siberia and Tartary, of easy culture in any dry soil; propagated by layers or cuttings inserted in the soil, and covered with a hand-glass.

1. D. Ceratòi'des *W.* The *two*-horned-*calyxed* Diotis.

*Identification.* Willd. Sp. Pl., 4. p. 368.
*Synonymes.* A'xyris Ceratòides *Lin. Sp. Pl.* 1389.; Ceratospêrmum pappòsum *Pers.*; A'xyris fruticòsa, flóribus fœmíneis lanàtis, *Gmel. Sib.* 3. p. 17. No. 10. t. 2. f. 1.; Achyrânthes pappòsa *Forsk. Descr.* 48.; Krascheninnikòvia Güldenst. in Act. Petrop. 16. p. 548. t. 17.; Urtìca fòliis lanceolàtis, fœminìnis hirsùtis, *Roy. Lugāb.* 210.; Ceratòides orientàlis fruticòsa Elæágni fòlio *Tourn. Cor.* 52.; Orientalisches Doppelohr, *Ger.*
*Engravings.* Jacq. Ic. Rar., 1. t. 189.; and our *fig.* 1321.

*Spec. Char., &c.* See Gen. Char. A low deciduous shrub, with recumbent branches. Siberia and Tartary. Height 2 ft. Introduced in 1780. Flowers apetalous, yellow, sweet-scented; March and April.

1321. D. Ceratòides.

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## Order LVIII. *POLYGONA'CEÆ.*

Ord. Char. *Perianth* divided; æstivation imbricate. *Stamens* definite, inserted in the base of the perianth. *Ovarium* free, 1-seeded. *Styles* or stigmas numerous. *Fruit* naked or covered. *Albumen* mealy.—The erect ovulum and superior radicle separate this order from Phytolàceæ and Chenopòdeæ. (*G. Don.*)

*Leaves* simple, alternate, with cohesive stipules, deciduous or sub-evergreen ; when young, rolled backwards. *Flowers* occasionally unisexual, often in racemes.—Low suffruticose shrubs, natives of the South of Europe and Asia, included in three genera, which are thus contradistinguished : —

TRAGOPY'RUM *Bieb.* Calyx 5-sepaled. Stamens 8. Styles 3.
ATRAPHA'XIS *L.* Calyx 5-sepaled. Stamens 6. Styles bifid.
CALLI'GONUM *L.* Calyx 5-parted. Stamens 16. Styles 3—4, united at the base.

## GENUS I.

### TRAGOPY'RUM *Bieb.* THE GOAT-WHEAT. *Lin. Syst.* Octándria Trigýnia.

*Identification.* Bieb. Flor. Taurico-Caucas., 3. p. 284.
*Synonyme.* Polýgonum *Lin. Hort. Ups.* 95.
*Derivation.* *Tragos*, a goat, and *puros*, wheat. The 3-cornered fruits of such of the Polygonàceæ as have them are comparable, with some allowance, to wheat ; and goats may feed upon those of the Tragopỳrum, or upon the shrubs themselves ; or it may be that the name has been invented as one readily distinctive from the name Fagopỳrum, now the name of a genus that includes the different kinds of buck-wheat

*Gen. Char., &c.* *Calyx* inferior, with sepals that are imbricate in æstivation, permanent ; the two exterior smaller, the three interior investing the fruit, which is an achenium, that is, 3-cornered in a transverse section of it. *Stamens* 8. *Styles* 3. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous or sub-evergreen ; spathulate. *Flowers* in axillary racemes. — Shrubs, small, sub-evergreen, suffrutescent ; natives of the South of Europe, Asia, and America ; propagated by seeds or layers in dry soil.

The species are extremely interesting and beautiful little shrubs, and it is much to be regretted that they are so very seldom seen in collections. Though they require heath soil, and some little time to be firmly established, yet when once they are so, from their compact neat habit of growth, very little care will be necessary afterwards. They never can require much pruning ; are quite hardy ; and, provided the soil be not allowed to get too dry in the heat of summer, they are always certain of flowering freely.

1. T. LANCEOLA'TUM *Bieb.* The lanceolate-*leaved* Goat-Wheat.

*Identification.* Bieb. Fl. Taurico-Caucas.
*Synonymes.* Polýgonum frutêscens *Willd. Sp. Pl.* 2. p. 410. ; strauchartiger Knöterig, *Ger.*
*Engravings.* Gmel. Sib., 3. t. 12. f. 2. ; Bot. Reg., t. 254. ; and our *fig.* 1322.

*Spec. Char., &c.* Stem spreading widely. Leaves lanceolate, tapered to both ends, flat. Ochrea lanceolate, shorter than the internode. The 2 exterior sepals reflexed, and the 3 interior ones obcordate. Flowers octandrous, trigynous. A low, branchy, sub-evergreen shrub. Siberia and Dahuria. Height 1 ft. to 2 ft. Introd. 1770, but rare in collections. Flowers whitish and rose-coloured ; July and August.

1322. T. lanceolatum.

Branches twiggy. Leaf with a frosty hue, spathulate-lanceolate, nearly 1 in. long, several times longer than broad ; its edge obscurely indented. The petiole short. The calyxes are whitish, variegated with rose colour, and persistent ; and of the 5 sepals to each flower, the 3 that invest the ovary

after the flowering become more entirely rosy. The pedicels, erect while bearing the flower, after the flowering become deflexed, and render the fruit pendulous. The plant forms a hemispherical bush 2 or 3 feet high ; which, during great part of July and August, is covered with its beautiful white flowers, tinged with pink ; and forms a truly admirable object. It thrives best in peat soil, and is worthy of a prominent place in the most select collections of shrubs.

### ✱ 2. T. BUXIFO'LIUM *Bieb.* The Box-leaved Goat-Wheat.

*Identification.* Bieb. Fl. Taurico-Caucas.
*Synonymes.* *Polýgonum* crispulum var. *α Sims Bot. Mag.* t. 1065. ; *P.* caucásicum *Hoffmannsegg.*
*Engravings.* Bot. Mag., t. 1065. ; and our *fig.* 1323.

*Spec. Char., &c.* Leaf obovate, obtuse, tipped with a short mucro ; the lateral margins undulated and reflexed, glabrous. Ochreas with 2 awns. A decumbent shrub. Siberia. Stems 2 ft. Introduced in 1800. Flowers white ; July. Fruit red ; ripe in September.

The leaves are of a light green colour, rather rounded in outline, about 1 in. in diameter, and deciduous. The flowers are produced in long racemes, are nodding and white. The fruit is enclosed by the 3 inner sepals, which become, as the fruit ripens, of a rosy colour.

1323. T. *buxifòlium.*

### ✱ 3. T. POLY'GAMUM *Spr.* The polygamous-*sexed* Goat-Wheat.

*Identification.* Spreng. Syst. Veg., 2. p. 251.
*Synonymes.* *Polýgonum* polýgamum *Vent. Cels.* t. 65. ; *P.* parvifòlium *Nutt. Gen.* 1. p. 256.
*Engravings.* Vent. Cels., t. 65. ; and our *fig.* 1324.

*Spec. Char., &c.* Leaves spathulate-linear. Ochreas lanceolate, shorter than the internodes. Flowers in branched racemes, whose rachises are thread-shaped. Styles distinct. (*Spreng.*) A diminutive upright shrub. Carolina, in sandy wastes. Height 6 in. to 1 ft. Introduced in 1810. Flowers small, greenish white ; July and August.

T. polýgamum *Spr.* differs from T. lanceolàtum *Bieb.*, especially in the following points : stem very much branched ; leaf spathulate ; sexes polygamous ; sepals expanded during the flowering ; and ochreas entire at the top. The polygamous condition of the sexes consists in the flowers of the same plant being some bisexual, some female. In *fig.* 1324. *a* is a stamen, *b* the pistil, and *c* the bisexual flower.

1324. T. polýgamum

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*T. marítima*, a species from North America, was sent to the Horticultural Society by Mr. Douglas, in 1826.

## GENUS II.

### ATRAPHA'XIS *L.* THE ATRAPHAXIS. *Lin. Syst.* Hexándria Digýnia.

*Identification.* Schreb. Lin. Gen., No. 612. ; Willd. Sp. Pl., 2. p. 248.
*Synonymes.* *A'triplex Tourn.* ; Strauchmelde, *Ger.*
*Derivation.* According to some, from *a* privative, and *trephō*, to nourish ; in allusion to the fruit, which, though in form like that of the buck-wheat, is unfit for food ; according to others, *para to athroōs auxein*, from its coming up quickly from seed, viz. on the eighth day.

*Gen. Char., &c.* *Calyx* inferior, of 4 leaves, in an outer smaller pair, and an

interior pair, the latter resembling petals; or 4-parted, with the lobes equal. *Stamens* 6. *Stigmas* 2, in one species; style bifid, in the other. *Fruit* compressed, in one species; roundish, in the other. (*G. Don.*)

*Leaves* simple, alternate, stipulate, sub-evergreen; small, more or less ovate. *Flowers* terminal, white, tinged with pink. — Shrubs, spinose, low, decumbent; natives of the South of Europe. Culture as in Tragopỳrum.

1325. *A.* spinòsa.

1. *A.* SPINO'SA *L.* The spine-*branched* Atraphaxis.

*Identification.* Lin. Hort. Cliff., 138.; Willd. Sp. Pl., 2. p. 248.
*Synonyme.* *A*'triplex orientàlis, frùtex aculeàtus, flòre pùlchro, *Tourn. Cor.* 83.
*Engravings.* Dend. Brit., t. 119.; and our *fig.* 1325.

*Spec. Char., &c.* Spinose, with the branches ascending, horizontal, or deflexed. Leaves glaucous, ½ in. long, or less; disk ovate, acute, petiole short. Calyx of 4 leaves. (*Willd.*) A low sub-evergreen shrub. Borders of the Caspian Sea and the Levant. Height 2 ft. to 3 ft. Introd. 1732. Flowers white, tinged with pink; August. Seeds brown, occasionally ripened.

It thrives best in sandy peat, and is propagated by layers. So elegant and rare a plant deserves a place in every choice collection.

2. *A.* UNDULA'TA *L.* The waved-*leaved* Atraphaxis.

*Identification.* Lin. Hort. Cliff., 137.; Willd. Sp. Pl., 2. p. 249.
*Engravings.* Dill. Elth., t. 32. f. 36.; and our *fig.* 1326.

1326

*Spec. Char., &c.* Less rigid than *A.* spinosa, and not spiny. Leaves ovate, waved at the edges, and of a greener hue. Calyx 4-parted, lobes equal, ovate, and concave. Stamens lanceolate. Style bifid. Fruit roundish. (*Willd.*) A low shrub. Cape of Good Hope. Height 6 in. to 1 ft. Introd. 1732, rare. Flowers whitish; June and July.

## GENUS III.

CALLI'GONUM *L.* THE CALLIGONUM. *Lin. Syst.* Dodecándria Tetragýnia.

*Identification.* Lin. Gen., 680.; Willd. Sp. Pl., 2. p. 926.
*Synonymes.* Pallàsia L., Pterocóccus *Pall.*
*Derivation.* *Kallos*, beauty, *gonu*, a knee; in description of the neat and jointed character of the branches.

*Gen. Char., &c.* *Calyx* inferior, persistent, turbinate in the lower part, ending upwards in a 5-parted spreading border; the two outer lobes rather smaller. *Stamens* about 16; the filaments slightly united at the base, and then diverging. *Anthers* peltate. *Germen* 4-sided, acuminate. *Styles* 4 or 3. *Stigmas* capitate. *Fruit* an achenium, that has 4 sides and 4 wings. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; caducous, minute. Shoots rush-like, smooth, green. *Flowers* in groups, whitish.—Shrub erect, evergreen from the colour of the shoots, natives of Siberia. Layers.

1. C. PALLA'SIA L'Hérit. Pallas's Calligonum.

*Identification.* L'Hérit. Stirp., 2. p. 37.; Willd. Sp. Pl., 2. p. 927.
*Synonymes.* Pterocóccus aphýllus *Pall. Voy.* 2. p. 738. t. 8.; Callígonum polygonòides *Pall. Itin.* 3. p. 536.; Pallàsia cáspica *Lin. fil. Suppl.* 252. *Savigny* in *Encycl.*; Pallàsia Pterocóccus *Pall. Fl. Ross.* 2. p. 70. t. 77, 78.; Caspischer Hackenknopf, *Ger.*
*Engravings.* Pall. Fl. Ross., 2. t. 77, 78.; and our *figs.* 1237. and 1238.

*Spec. Char., &c.* Fruit winged; wings membranous, curled, and toothed.

(*L'Hérit.*) A low shrub, evergreen from the colour of its shoots. Banks of the Caspian Sea, and on gravelly hills near the Wolga, at Astracan. Height 3 ft. to 4 ft. Introd. 1780. Flowers whitish; May. Fruit crimson; July; succulent, acid, and eatable.

1327. C. Pallàsia.

A very curious plant, well deserving the attention of collectors of botanical rarities. Though long since introduced, it is now lost to British gardens.

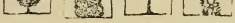
1328. C. Pallàsia

## Order LIX. LAURA'CEÆ.

*Ord. Char.* *Perianth* 4—6-cleft; æstivation imbricate. *Stamens* definite, perigynous; opposite the segments, but often double their number, in two series. *Anthers* adnate, 2—4-celled. *Ovarium* free, 1-seeded. *Style* and *Stigma* simple. *Fruit* a berry or drupe. *Albumen* none. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, seldom opposite, evergreen or deciduous; entire, or very rarely lobed. *Inflorescence* panicled or umbeled.—Trees or shrubs, deciduous or evergreen; natives of Asia and North America, and one of them of the South of Europe. Propagated by seeds or layers.

### Genus I.



LAU'RUS *L.* The Laurel, *or Bay*, Tree. *Lin. Syst.* Enneándria Monogýnia.

*Identification.* Lin. Gen., No. 503., in part.
*Synonymes.* *Sássafras* and *Benzòin*, C. G. Von Esenbeck; Daphnē, *Greek*; Laurier, *Fr.*; Lorbeer, *Ger.*
*Derivation.* From *laus*, praise; in reference to the ancient custom of crowning the Roman conquerors with laurel in their triumphal processions There appears some doubt of the *Laúrus* nóbilis being the Laurus of the Romans, and the Daphnē of the Greeks. (See *Dáphne.*)

*Gen. Char., &c.* *Sexes* polygamous or diœcious. *Calyx* with 6 sepals. *Stamens* 9; 6 exterior, 3 interior, and each of them having a pair of gland-like bodies attached to its base. These last have been deemed imperfect stamens. *Anthers* adnate; of 2 cells in most of the species, of 4 unequal ones in the others: each cell is closed by a vertical valve that opens elastically, and often carries up the pollen in a mass. *Fruit* a carpel, pulpy externally and including one seed. *Cotyledons* eccentrically peltate. (*Willd.*)

*Leaves* simple, alternate, exstipulate, deciduous or evergreen; entire or lobed. *Flowers* in small conglomerate umbels or bracteate racemes.—Shrubs or low trees, deciduous or evergeen; natives of the South of Europe, North of Africa, and America. Propagated by seeds or layers.

A. *Leaves evergreen.*

1. *L.* no'bilis *L.* The noble Laurel, *or Sweet Bay.*

*Identification.* Lin. Sp., 529.; Willd. Sp. Pl., 2. p. 479.
*Synonymes.* *Laúrus Camer., Tourn., Dodon., Ray*; *L.* vulgàris *Bauh. Pin.* 460.; Laurier commun, Laurier franc, Laurier d'Apollon, Laurier à Sauce, *Fr.*; gemeine Lorbeer, *Ger*; Alloro, *Ital.*
*Engravings.* Flor. Græc., t. 365.; the plate in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1329.

*Spec. Char., &c.* Evergreen. Flowers 4-cleft. Sexes diœcious. Leaves

lanceolate, veiny. (*Willd.*) An evergreen low tree or large shrub. Italy, Greece, and North of Africa. Height 30 ft. to 60 ft. Introduced in 1562, or before. Flowers white or yellow ; April and May. Berry very dark purple, ripe in October.

*Varieties.*

- L. *n.* 2 *undulàta* Mill.—A low shrub, seldom growing higher than 4 or 6 feet, with leaves waved on the edges, which is stated in the *Nouveau Du Hamel* to be hardier than the species.
- L. *n.* 3 *salicifòlia* Swt. *L.* n. angustifòlia *Lodd. Cat.*—A shrub, rather higher than the preceding variety, with long narrow leaves, not so thick as those of the species, and of a lighter green.
- L. *n.* 4 *variegàta* Swt. *L.* n. fol. var. *Lodd. Cat.* — Leaves variegated.
- L. *n.* 5 *latifòlia* Mill. — Leaves much broader and smoother than those of the species. This is the broad-leaved bay of Asia, Spain, and Italy, and it is generally considered as too tender for the open air in England.
- L. *n.* 6 *crispa* Lodd. Cat. — Leaves somewhat curled.
- L. *n.* 7 *flòre plèno* N. Du Ham. — Flowers double.

An evergreen tree, or rather enormous shrub, sometimes growing to the height of 60 ft., but always displaying a tendency to throw up suckers ; and rarely assuming a tree-like character. The leaves are evergreen, and of a firm texture ; they have an agreeable smell, and an aromatic, subacrid, slightly bit-

1329. Laúrus nóbilis.

terish taste. The plant requires a good free soil, and it will not thrive in the open air, in a climate much colder than that of the environs of London. It is generally propagated by layers ; but, as the berries are ripened in the South of England, and can be had in abundance from France, the species is very

generally increased from seeds, and the varieties only raised from layers or cuttings.

♀ 2. *L.* CAROLINE'NSIS *Catesb.* The Carolina Laurel, *or Red Bay.*

*Identification.* Catesb. Car., 1. p. 63.; Pursh Sept., 1. p. 276.; Spreng. Syst., 2. p. 665.
*Synonymes.* *L.* Borbòn*ia* Lin. Sp. 529., Syst. 383.; *L.* axillàris *Lam.*; Borbòn*ia* sp. *Plum. Gen.* 4. ic. 60., *Pérsea* Borbòn*ia* Spreng.; the broad-leaved Carolina Bay; Laurier rouge, Laurier Bourbon, Laurier de Caroline, *Fr.*; Carolinischer Lorbeer, rother Lorbeer, *Ger.*
*Engravings.* Catesb. Car., t. 63.; Michx. N. Amer. Syl., 2. t. 82.; N. Du Ham., 2. t. 33.; and our *fig.* 1330. after Michaux, and *fig.* 1331. after Du Hamel.

*Spec. Char., &c.* Evergreen. Leaves oval, lanceolate, slightly glaucous beneath. Flowers in peduncled axillary groups. (*Spreng.*) An evergreen tree, in England a somewhat tender shrub. Virginia to Louisiana. Height 60 ft. to 70 ft. in America; 5 ft. to 10 ft. in England. Introduced in 1739. Flowers whitish; May.

1330. *L.* carolinénsis.

1331. *L.* carolinénsis.

*Varieties.*

♀ L. *c.* 2 *glàbra* Pursh. — Leaves slightly glabrous.
♀ L. *c.* 3 *pubéscens* Pursh. — Leaves slightly pubescent.
♀ L. *c.* 4 *obtùsa* Pursh. — Leaves ovate-obtuse.

Only suitable for warm or sheltered situations, or for being placed against a conservative wall.

♀ 3. *L.* CATESBI*A'NA* Michx. Catesby's Laurel, *or Red Bay.*

*Identification.* Michx. Fl. Bor. Amer., 1. p. 244.; Spreng. Syst., 2. p. 265.; Pursh Fl. Amer. Sept., 1. p. 275.
*Synonymes.* *L.* æstivàlis *Lin. Spec.* 529.; *L.* enérvis *Mill. Dict.* No. 8.; *L.* Euosmus æstivàlis *Nutt. Gen.* 1. p. 259.; Pond Bush, *Amer.*; Sommer Lorbeer, *Ger.*
*Engravings.* Catesb. Car., t. 28.; and our *fig.* 1332.

*Spec. Char., &c.* Evergreen. Leaves ovate-lanceolate, glossy. Flowers in a terminal panicle. Fruit ovate. (*Spreng. Syst.*) An evergreen shrub. Sea coast of Georgia and Carolina. Height 5 ft. to 10 ft. Introduced in 1820. Flowers white; May. Berries black, based by red calyxes, on thick red peduncles; never seen in England.

We are uncertain as to the hardiness of this species, not having seen living plants, except in the green-house of the Jardin des Plantes.

1332. *L.* Catesbi*ana.*

B *Leaves deciduous.*

♃ 4. *L.* *SA'SSAFRAS* L The Sassafras Laurel, *or Sassafras Tree.*

*Identification.* Lin. Hort. Cliff., 154.; Willd. Sp. Pl., 2. p. 485.; Pursh Sept., 1. p. 277.

*Synonymes.* Córnus más odoràta, folio trifido, margine plano. Sassafras dicta, *Pluk. Alm.* 120 t. 222. f. 6.; Sassafras arbor, ex Florida, ficulneo folio, *Bauh. Pin.* 431.; *Sássafras* sp. *C. G. Nees Von Esenbeck*; Pérsea *Sássafras* Spreng.; Laurier Sassafras, *Fr.*; Sassafras Lorbeer, *Ger.*; Sassofrasso, *Ital.*

*Engravings.* Catesb. Car., 1. t. 55.; N. Du Ham., 5. t. 114.: plates in Arb. Brit., 1st ed. vol. vii.; and our *fig.* 1333.

*Spec. Char., &c.* Sexes diœcious. Arborescent. Leaves and flowers produced from the same buds. Buds, younger branches, and the under surface of the leaves, pubescent. Leaves entire, or with 2—3 lobes. Veins prominent on the under side. Flowers in corymbose conglomerate racemes. Anthers with 4 unequal cells. In the female flower, additionally to the pistil, are 6 gland-like bodies, like those in the male flowers. (*Nutt.*) A deciduous tree. South Carolina. Height 40 ft. to 50 ft. Introduced in 1633. Flowers greenish yellow, slight, odoriferous; April and May. Berries bright deep blue, contained in small dark red cups; ripe in September.

The sassafras tree often grows, even in England, to the same height as in America. The leaves, which vary very much in size and shape, are covered, when they first appear, with a soft woolly down; they are generally deeply lobed, on long footstalks, and of a pale green; they fall off early in autumn of

1333. *L. Sássafras.*

an intense red and yellow. Any free soil, rather moist than dry, will suit this species, which is generally propagated from imported seeds. These should be sown, or put in a rot-heap, as soon as received, as they remain a year, and sometimes two or three years, in the ground, before they come up. It may also be propagated by cuttings of the roots, or by suckers, which the roots of

old trees throw up in great abundance. The situation where the tree is finally planted should be sheltered; and, in the North of England and in Scotland, to insure fine foliage, it should be planted against a wall.

### ✻ 5. *L. BENZO`IN* L. The Benzoin Laurel, *or Benjamin Tree.*

*Identification.* Lin. Hort. Cliff., 154.; Willd. Sp. Pl., 2. p. 485.; Pursh, 1. p. 276.
*Synonymes.* Arbor virginiana citreæ vel limonii folio, benzoinum fundens, *Comm. Hort.* 1. p. 189. t. 97.; *Laúrus æstivàlis Wangh. Amer.* 87.; *L.* Pseùdo-*Benzòin* Mich. Fl. Amer. 1. p. 243.; *L.* Euósmus *Benzòin* Nutt. Gen. 1. p. 259.; *Benzòin* sp. *C. G. Nees Von Esenbeck*; Spice Bush, Spice Wood, or wild Allspice, *Amer.*, according to Nuttall; Laurier faux Benzoin, *Fr.*; Benzoin Lorbeer, *Ger.*
*Engravings.* Comm. Hort., 1. t. 97.; Pluk. Alm., t. 139. f. 34.; and our *fig.* 1334.

*Spec. Char., &c.* Leaves cuneate-obovate, entire, the under side whitish and partly pubescent, deciduous. Sexes polygamous. Flowers in umbels. Buds and pedicels of the umbels glabrous. Leaves without nerves, ovate, acute at both ends. (*Willd.*) A deciduous shrub. Virginia. Height 10 ft. to 12 ft. Introduced in 1688. Flowers yellowish green; March and April. Berries scarlet; seldom or never seen on the plants in England.

1334. *L. Benzoin.*

In British gardens, it forms a rather tender peat-earth shrub, handsome from its large leaves, but seldom thriving, except where the soil is kept moist and the situation sheltered. It is propagated from imported seeds, which require to be treated like those of *Laúrus Sássafras*; by layers; or, with difficulty, by cuttings.

### ✻ 6. *L. (B.) DIOSPY`RUS Pers.* The Diospyrus-*like* Laurel, *or Bay.*

*Identification.* Pers. Syn., 1. p. 450.; Pursh Sept., 1. p. 276.
*Synonymes.* *L.* Euósmus *Diospỳrus Nutt. Gen.* 1. p. 259.; *L. diospyröides Michx. Fl Bor. Amer.* 1. p. 243.; ? *L.* melissæfòlia *Walt. Fl. Car.* 134.
*Engravings.* Bot. Mag., t. 1470.; and our *fig.* 1335.

*Spec. Char., &c.* Habit low, surculose, twiggy. Leaves oblong-oval, and entire, the under side veiny and pubescent, deciduous. Flower buds and pedicels villous. Sexes diœcious. (*Nutt.*) A running, twiggy, deciduous shrub. Virginia and Carolina, in swamps. Height 2 ft. to 3 ft. Introduced in 1810. Flowers greenish yellow; April. Berries scarlet or purple; rarely seen in England.

1335 *L. (B.) Diospỳrus.*

Leaves opaque, oblong-oval, attenuated towards the base, entire, the under side veiny and pubescent, deciduous. Scales of the buds purple, villous. Younger branches villous. This species so closely resembles *L. Benzòin*, as to leave no doubt in our mind that it is only a variety of it.

### ✻ 7. *L.* GENICULA`TA *Michx.* The knee-flexed-*branched* Laurel, *or Bay.*

*Identification.* Michx. Fl. Bor. Amer., 1. p. 244.; Pursh Sept., 1. p. 276.
*Synonymes.* *L.* Euósmus geniculàta *Nutt. Gen.* 1. p. 259.; *L.* æstivàlis *Willd. Sp. Pl.* 2. p. 484., according to Pursh.
*Engravings.* Bot. Mag., t. 1471.; and our *fig.* 1336.

*Spec. Char., &c.* Branches divaricate and flexuous. Leaves cuneate-oblong, mostly obtuse, about 1½ in. long, in many instances less than half an inch wide, entire, glabrous, except upon the under side near the base. Flowers

in terminal small umbels, that are upon conspicuous footstalks and smooth. Anthers unequally 4-celled. Sexes polygamous. (*Nutt.*) A deciduous shrub, with the branches flexuous, grey, smooth, and so remarkably divaricated as to give a characteristic appearance to the ponds which they border. Virginia to Florida, in sandy swamps, and on the margins of lagoons. Height 8 ft. to 12 ft. Introduced in 1759. Flowers yellow; April and May. Berries globose, scarlet; rarely seen in England.

1336. *L.* geniculàta.

## Order LX. THYMELA'CEÆ.

*Ord. Char. Perianth* tubular, coloured, 4—5-cleft, often furnished with scales in the throat. *Stamens* usually 8, sometimes 4, rarely 2, inserted in the throat of the perianth. *Ovarium* superior, 1-seeded. *Stigma* undivided. *Fruit* nucamentaceous or drupaceous. *Albumen* thin, fleshy, or none. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous or evergreen; entire, coriaceous. *Flowers* terminal or axillary, showy, fragrant.—Shrubs or subshrubs; natives of Europe, Asia, and America; propagated by seeds, layers, or grafting. The genera are two, which are thus contradistinguished:—

| | | | |
|---|---|---|---|
| *Da'phne L.* | Calyx 4-parted. | Stigma capitate. | Fruit pulpy. |
| Di'rca *L.* | Calyx 4-toothed. | Stigma pointed. | Fruit dry. |

### Genus I.

*DA'PHNE L.* The Daphne. *Lin. Syst.* Octándria Monogýnia.

*Identification.* Lin. Gen., 192.; Eng. Flora, 2. p. 228.

*Synonymes.* Thymelæ'a *Tourn. Inst.* t. 366., *Gærtn.* t. 39.; Daphne, *Fr.*; Seidelbast, *Ger.*; Dafne, *Ital.*

*Derivation. Daphnē* is considered by some botanists to have been the Greek name of the *R*úscus racemòsus, or Alexandrian laurel, into which it is fabled that Daphne was changed. "Why the name has been applied to the shrubs now called *D*áphne, it is not easy to say." (*Lindl. Bot. Reg.*, t. 1177.) It is stated in Rees's *Cyclopædia*, under *L*aúrus, that *L.* nóbilis "is certainly the *Daphnē* of Dioscorides, and consequently the classical laurel. It is still called by the same name among the modern Greeks;" this is also the popular belief. (See St. Pierre's *E'tudes de la Nature*, Lempriere's *Class. Dict.*, &c. &c.) Supposing the *Daphnē* to have been the *L*aúrus nóbilis, or bay tree, it is easy to account for its being applied to this genus, the *D. Mezèreum* being formerly called the dwarf bay in England; and nearly all the species retaining the names of laureole and laureola in France and Italy.

*Gen. Char. Calyx* inferior, somewhat salver-shaped; in most, of some other colour than that of the leaves, and, from its shape and colour, resembling a corolla; segments of its limb 4, deep, ovate, or oblong, imbricate in æstivation. *Stamens* 8, in two rows; the filaments with but a short part distinct from the tube of the calyx; the anthers not prominent beyond it. *Ovary* solitary. *Style* very short. *Stigma* capitate. *Fruit* an ovate carpel, pulpy externally. *Seed* 1. (*Willd.*)

*Leaves* simple, in most alternate; if not alternate, opposite, exstipulate, deciduous; entire. *Flowers* terminal or axillary, mostly in groups, highly fragrant.—Undershrubs, evergreen and deciduous; natives chiefly of Europe, but partly also of the cooler parts of Asia, including Japan and China. The odour of some of the species is very agreeable. They are all beautiful, and rather difficult to propagate, except by seeds, or grafting on *D.* Laurèola. They thrive best in heath soil.

### A. *Leaves deciduous.*

1 *D. Meze'reum* L. The Mezereon Daphne, *or common Mezereon.*

*Identification.* Lin. Sp. Pl., p. 509.; Willd. Sp. Pl., 2. p. 415.; Eng. Flora, 2. p. 228.
*Synonymes.* Spurge Olive, Spurge Flax; Flowering Spurge, *Parkinson*; Dwarf Bay, *Gerard*; Laureole femelle, Bois gentil, Mézéreon, Bois joli, *Fr.*; gemeiner Seidelbast, or Kellerbalz, *Ger.*; Peperachtige Daphne, *Dutch*; Laureola femina, Biondella, Camelia, *Ital.*; Laureola hembra, *Span.*
*Derivation.* Mezereum and Mezereon are said to be derived from *madzaryon*, the Persian name for this shrub.
*Engravings.* Eng. Bot., t. 1381.; Œd. Fl. Dan., t. 268.; and our *fig.* 1337.

*Spec. Char., &c.* Leaves lanceolate, deciduous. Flowers distributed over the branches in threes mostly, and in pairs and fours, expanded before the leaves are protruded. (*Willd.*) A low, fastigiate, deciduous shrub. North of Europe, in woods; and in the South and West of England, but rare. Height 3 ft. to 4 ft. Flowers red; February, March, or April. Berries red; ripe in August or September.

*Varieties.*

- D. M. 2 *flore albo.* — Flowers white, and fruit yellow.
- D. M. 3 *autumnale.* — Habit spreading; also with larger leaves than the species, and producing its flowers in autumn. A most desirable shrub, being commonly covered with its gay pinkish blossoms from November to March.

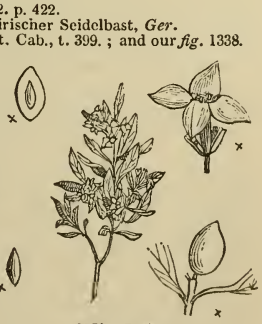
1337. *D. Mezereum.*

The whole shrub is poisonous to human beings, though the berries are favourite food for finches and other birds, more especially the robin. It is of easy culture, and generally propagated by seeds; which, if suffered to get dry before they are sown, will remain two years in the soil; but which, if sown in autumn immediately after gathering them, generally come up the following spring. The best time for transplanting this shrub is in October, as it begins to vegetate very soon after Christmas. It thrives most in a loamy soil, and in an open situation; and, when it is properly treated, and has room, it will in 8 or 10 years form a bush 5 or 6 feet high, and 7 or 8 feet in diameter. The white variety is commonly selected from seedlings, after they have come into flower; or the seeds from white-flowered plants are sown, which are generally found to come true.

2. *D.* alta'ica *Pall.* The Altaic Daphne.

*Identification.* Pall. Fl. Ross., 1. p. 53. t. 35.; Willd. Sp. Pl., 2. p. 422.
*Synonymes.* Daphné altaïque, Laureole de Tartarie, *Fr.*; Sibirischer Seidelbast, *Ger.*
*Engravings.* Pall. Fl. Ross., 1. t. 35.; Bot. Mag., t. 1875.; Bot. Cab., t. 399.; and our *fig.* 1338.

*Spec. Char., &c.* Leaves obovate-lanceolate, glabrous. Flowers sessile, in terminal umbels, about 5 in an umbel. Bark reddish brown in colour. Leaves oblong, broader towards the upper extremity, and narrowed downwards, of a somewhat glaucous and yellowish green, the latter colour prevailing most while they are young. Lobes of the calyx revolute. (*Sims.*) A low deciduous shrub. Altaic Alps, in Siberia. Height 1 ft. to 3 ft. Introduced in 1796. Flowers white, scentless; April and May. Berries red; ripe in September.



1338. *D. altaica.*

### 3. *D.* ALPI'NA *L.* The Alpine Daphne.

*Identification.* Lin. Sp., 510., Syst., 371.; Willd. Sp. Pl., 2. p. 418.
*Synonymes.* The Alpine Chamelea *Marsh. Plant.* 2. p. 112.; Daphné des Alpes, *Fr.*; Alpen Seidelbast, *Ger.*; Olivella, *Ital.*
*Engravings.* Bot. Cab., t. 66.; and our *fig.* 1339.

1339. *D.* alpina.

*Spec. Char., &c.* Leaves lanceolate, a little obtuse, tomentose beneath, deciduous. Flowers sessile, aggregate. (*Willd.*) A low, branchy, deciduous shrub. Alps of Switzerland, Geneva, Italy, and Austria. Height 2 ft. Introduced in 1759. Flowers white, very fragrant; May to July. Berries red; ripe in September.

Quite hardy, and very suitable for rockwork; as the roots fix themselves deeply into the crevices of the rocks.

B. *Erect. Leaves persistent. Flowers lateral.*

### 4. *D.* LAURE'OLA *L.* The Laureola Daphne, *or Spurge Laurel.*

*Identification.* Lin. Sp. Pl., 510.; Willd. Sp. Pl., 2. p. 418.; Eng. Flora, 2. p. 229.
*Synonymes.* Daphnòides vèrum, vel Laurèola, *Gesn.* fasc. 1. 7. t. 6. f. 9.; Laurèola *Rait Syn.* 465., *Ger. Em.* 1404.; Thymelæ'a Laurèola *Scop. Carn.* 2. n. 463.; the evergreen Daphne; Lauréole male, Lauréole des Anglais, *Fr.*; immergrüner Seidelbast, *Ger.*; Cavolo di Lupo, *Ital.*
*Engravings.* Eng. Bot., t. 119.; Jacq. Austr., t. 183.; and our *fig.* 1340.

*Spec. Char., &c.* Evergreen. Leaves obovate-lanceolate, smooth. Flowers in axillary, simple, drooping clusters, that are shorter than the leaves: flowers in each about 5. Calyx obtuse. (*Smith.*) A low, bushy, evergreen shrub. Britain, and most other parts of Europe, in woods. Height 3 ft. to 4 ft. Flowers yellowish green; January to March. Berries oval, green first, changing to black; ripe in September.

Though not showy in its flowers, it is a valuable plant for a shrubbery, from its being evergreen, and from its thick, glossy, shining leaves. It thrives best in the shade, and will flourish in situations under the drip of trees, where few other plants would grow. If exposed to the sun, the leaves turn back with a kind of twist; and, instead of their natural pure deep green, they assume a brownish tinge. The berries are a favourite food of singing-birds: though, as DeCandolle observes in the *Flore Française*, they are poisonous to all other animals. The spurge laurel is propagated by seeds, like the mezereon; but, as they will remain two years in the ground before they vegetate, they are generally treated like haws, and kept for some time in the rotting-heap. It may also be propagated by cuttings; but not readily. It is much used in nurseries, as a stock on which to graft the more tender species of the genus; but as, like all the other daphnes, it has few roots, it requires to be transplanted with care.

1340. *D.* Laurèola

### 5. *D.* PO'NTICA *L.* The Pontic Daphne, *or twin-flowered Spurge Laurel.*

*Identification.* Lin. Sp. Pl., 511.; Willd. Sp. Pl., 2 p. 419.
*Synonymes.* Thymelæ'a pòntica, citrei foliis, *Tourn. Itin.* 3. p. 180. t. 180.; Lauréole du Levant, *Fr.*; Pontischer Seidelbast, *Ger.*
*Engravings.* Bot. Mag., t. 1282.; and our *fig.* 1341.

*Spec. Char., &c.* Leaves obovate-lanceolate, glabrous. Flowers bractless, glabrous, in many-flowered upright clusters, each of the long partial stalks of which bears two flowers. Lobes of the calyx lanceolate, long. (*Spreng.*) A low, spreading, branchy, evergreen shrub. Asia Minor. Height 4 ft. to 5 ft. Introd. 1759. Flowers greenish yellow; April and May. Berries?

*Varieties.*

* D. *p.* 2 *rùbra* Hort. — Flowers red. Supposed to be a hybrid, and rather more tender than the species.
* D. *p.* 3 *fòliis variegàtis* Lodd. Cat. 1836. — Leaves variegated.

The whole plant, in general appearance, strongly resembles the common spurge laurel: but the leaves are more oval, and shorter; and the flowers, which are disposed in twos instead of fives, are yellower, and of a sweeter scent. The leaves somewhat resemble those of the lemon tree, especially in colour; whence Tournefort's trivial name. When bruised, they smell like those of the elder. It thrives best in soil similar to that usually prepared for American plants, on the shady side of a wall, or in some other sheltered situation.

1341. *D. póntica.*

¤ 6. *D.* THYMELÆ'A *Vahl.* The Thymelæa, *or Milkwort-like*, Daphne.

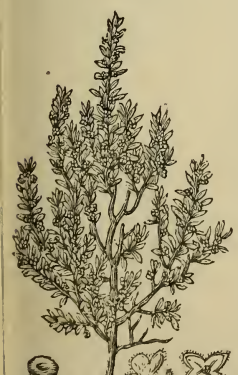
*Identification.* Vahl Symb., 1. p. 28.; Willd. Sp. Pl., 2. p. 416.
*Synonymes.* Thymelæ'a foliis polygalæ glabris *Bauh. Pin.* 463.; *T.* alpìna glàbra, flosculis subluteis ad foliorum ortum sessilibus, *Pluk. Alm.* 366. t. 229. f. 2.; Sanamúnda vìridis vel glàbra *Bauh. Prod.* 160.; Sanamúnda glàbra *Bauh. Hist.* 1. p. 592.; Passerìna Thymelæ'a *Dec.*; the Wild Olive; La Thymelie, *Fr.*; astloser Seidelbast, *Ger.*
*Derivation.* Thymelæ'a is probably derived from *thymos*, poison, and *elaia*, or *elæa*, the olive tree, in reference to the poisonous qualities of the plant. and its slight resemblance to the olive.
*Engravings.* Ger. Prov., t. 17. f. 2.; Pluk. Alm., t. 229. f. 2.; and our *fig.* 1342.

*Spec. Char., &c.* Evergreen. Stem much branched. Branches simple, warted. Leaves lanceolate, broader towards the tip, crowded, glaucous. Flowers axillary, sessile. (*Vahl.*) A low, much-branched, evergreen shrub. Spain, and in the neighbourhood of Montpelier. Height 3 ft. Introduced in 1815; but rare in collections. Flowers yellowish green; February to April. Berries small, yellowish; ripe in August.

The plant requires a situation warm and dry; and to be grown in sandy peat, kept in an equable degree of moisture.

1342. *D.* Thymelæ'a.

¤ 7. *D.* TA'RTON-RAI'RA L. The Tarton-raira, *or silvery-leaved*, Daphne.



1343. *D. Tárton-raira.*

*Identification.* Lin. Sp., 510.; Willd. Sp. Pl., 2. p. 417.
*Synonymes.* Thymelæ'a foliis candicantibus et serici instar mollibus *Bauh. Pin.* 463.; Tarton-Raire Gallo-provinciæ Monspeliensium *Lob. Ic.* 371.; Sanamúnda argentàta latifòlia *Barr. Ic.* 221.; Passerìna *Tarton-raira* Schrad.; the oval-leaved Daphne; Laurèole blanche, *Fr.*; Silberblättriger Seidelbast, *Ger.*
*Engravings.* Fl. Græca, t. 354.; and our *fig.* 1343.

*Spec. Char., &c.* Leaves persistent, obovate, nerved, silky, hoary. Flowers sessile, lateral, aggregate, imbricated with scales at the base. (*Vahl Symb.*) A branching low evergreen shrub. South of France. Height 2 ft. to 3 ft. Introduced in 1739. Flowers small, yellowish; May to July.

Remarkable for the smallness and silkiness of its leaves, and the white appearance of the whole plant; its branches are weak, irregular, and scarcely ligneous; it requires a warm dry situation, exposed to the sun, and is therefore very suitable for rockwork.

¤ 8. *D.* (? *T.*) PUBE'SCENS *L.* The pubescent Daphne.

*Identification.* Lin. Mant., 66.; Willd. Sp. Pl., 2. p. 417.
*Synonymes.* Thymelæ'a itàlica, Tarton-raire Gallo-provinciæ similis, sed per omnia major, *Micheli*, cited in *Tilli Cat. Hort. Pisani*; behaarter Seidelbast, *Ger.*

1344. *D.* (? *T.*) pub.

*Engravings.* Tilli Cat. Hort. Pisani, t. 49. f. 2.; and our *fig.* 1344.

*Spec. Char., &c.* Stems pubescent, simple. Leaves linear-lanceolate, almost mucronate, alternate, nearly deciduous. Flowers axillary; 5, or fewer, in an axil; sessile, narrow, shorter than the leaf; the tube thread-shaped and downy. It seems different from *D. Thymelæ'a*, and was found in Austria by Jacquin. (*Willd.*) Introduced in 1810.

♃ 9. *D.* (? *T.*) TOMENTO'SA *Lam.* The tomentose Daphne.

*Identification.* Lam. Dict.; N. Du Ham., 1. p. 26.
*Synonymes.* Passerìna villòsa *Lin.*; Lauréole cotonneuse *Lam. Encyc.* 10.
*Engraving.* Our *fig.* 1345. from a specimen in the Lambertian herbarium.

1345. *D.* (? *T.*) tomentòsa.

*Spec. Char., &c.* Flowers sessile, axillary. Leaves oblong-obtuse, covered with tomentum on both sides. (*Lam.*) A low shrub, very nearly allied to *D. Tárton-raíra*, but larger in all its parts, and with more obtuse leaves, which are covered with tomentum, instead of a silky down. Asia Minor and the Levant. Height 2 ft. to 3 ft. Introd. 1800. Flowers white; May. Berries?.

C. *Erect. Leaves persistent. Flowers terminal.*

♃ 10. *D.* COLLI'NA *Smith.* The Hill-*inhabiting* Daphne, *or Neapolitan Mezereon.*

*Identification.* Smith in Fl. Græca, t. 359.; Willd. Sp. Pl., 2. p. 423.
*Synonymes.* *D.* collìna α *Bot. Reg.* t. 822., ? *D. buxifòlia Vahl Symb.* 1. p. 29.; Daphné des Collines, Lauréole à Feuilles de Santé, *Fr.*; Stumpfblättriger Seidelbast, *Ger.*
*Engravings.* Fl. Græca, t. 359.; Bot. Cab., t. 1348.; and our *fig.* 1347.

*Spec. Char., &c.* Leaves obovate, glabrous and glossy above, and hirsutely villous beneath. Flowers in terminal groups. Calyx externally silkily villous; its lobes ovate, obtuse. (*Wikström.*) An upright, low, evergreen shrub. On low hills, and on the banks of rivers, in the South of Italy. Height 2 ft. to 3 ft. Introduced in 1752. Flowers pinkish; January to June. Berries?.

1347. *D.* collìna.

*Variety.*

♃ D. *c.* 2 *neapolitàna* Lindl. *D.* neapolitàna *Lodd. Bot. Cab.* t. 710., and our *fig.* 1346.—Differs from the species chiefly in the want of pubescence on the under surface of the leaves. A very pretty plant originated in a sport from the species, and in cultivation since 1822. Much admired for the fragrance of its purple and white flowers during winter.

1346. *D.* c. neapolitana.

Grafted plants, grown in a border sheltered from the north by a wall, thrive well; and form thick bushes, with nearly level heads, covered with flowers.

♃ 11. *D.* (c.) OLEÖI'DES *L.* The Olive-like Daphne.

*Identification.* Lin. Mant., 66.; Willd. Sp. Pl., 2. p. 423.
*Synonymes.* Chamædaphnöìdes crética *Alpin. Exot.* 44. t. 43.; *Thymelæ'a* crética oleæ folio utriusque glabro *Tourn. Cor.* 41.; *Dáphne salicifòlia Lam. Encycl.* 3. p. 423.; Lauréole à Feuilles d'Olivier, *Fr.*; Oelbaumblättriger Seidelbast, *Ger.*
*Engravings.* Alpin. Exot., t. 43.; Bot. Mag., t. 1917.; Bot. Cab., t. 299.; and our *fig.* 1348.

*Spec. Char., &c.* Leaves obovate-lanceolate, terminated with a minute mucro, glabrous upon both sides. Flowers terminal, sessile, a few together, and surrounded by leaves that in some measure involucrate them. (*Bot. Mag.*)

A low evergreen shrub. Crete. Height 2 ft. Introd. 1818. Flowers white during the greater part of the year.

It is less showy in its flowers than *D.* collìna; but is deserving of cultivation from its nearly glossy and pointed leaves, and neat habit of growth.

1348. *D.* (c.) oleöìdes.

♃ 12. *D.* (c.) SERI'CEA *Vahl.* The silky-*leaved* Daphne.

*Identification.* Vahl Symb., 1. p. 28.; Willd. Sp. Pl., 2. p. 423.
*Synonymes.* Thymelæ'a crética oleæ folio subtus villoso *Tourn. Cor.* 41.; Dáphne oleæfòlia *Lam. Encycl.* 3. p. 424.; Seidenartiger Seidelbast, *Ger.*
*Engraving.* Our *fig.* 1349. from a specimen in the Lambertian herbarium.

1349. *D.* (c.) serìcea.

*Spec. Char., &c.* Leaves lanceolate, bluntish, glabrous above, villous beneath. Flowers terminal, aggregate, villous, sessile. Lobes of the calyx obtuse. It differs from *D.* (c.) oleöìdes in its leaves being villous beneath, in the number of its flowers, and in the lobes of the calyx being oblong. (*Willd.*) A low evergreen shrub. Candia and Naples. Height 1 ft. to 2 ft. Introduced in 1820; but we have not seen the plant.

♃ 13. *D.* STRIA'TA *Trat.* The striated-*calyxed* Daphne.

*Identification.* Tratt., Spreng. Syst. 2. p. 237.
*Engraving.* Our *fig.* 1350. from a specimen in Dr. Lindley's herbarium.

1350. *D.* striàta

*Spec. Char., &c.* Leaves subspathulate-linear, sessile, tipped with a small mucro, glabrous. Flowers terminal, aggregate, sessile, glabrous, striated. Lobes of the calyx acute. (*Spreng.*) A low evergreen shrub. Switzerland and Hungary. This plant is said to have been introduced in 1819, and to have purplish flowers; but we have never seen it.

D. *Erect. Leaves persistent. Flowers in Racemes.*

♃ 14. *D.* GNI'DIUM *L.* The Gnidium, *or Flax-leaved*, Daphne.

*Identification.* Lin. Sp. Pl., 311.; Mill. Dict., n. 7.; Willd. Sp. Pl, 2. p. 420.; Lodd. Cat., ed. 1836.
*Synonymes.* Thymelæ'a foliis lini *Bauh. Pin.* 463.; Spurge Flax, Mountain Widow Wayle; Daphné Gnidium, Lauréole à Panicule, *Fr.*; Rispenblättriger Seidelbast, *Ger.*; Camelea, *Ital.*
*Engravings.* Bot. Cab., t. 150.; and our *fig.* 1351.

1351. *D.* Gnìdium.

*Spec. Char., &c.* Evergreen. Leaves linear-lanceolate, with a cuspidate tip. Flowers in terminal panicled racemes. (*Willd.*) A low evergreen shrub. Spain, Italy, and Narbonne. Height 2 ft. Introduced in 1797. Flowers fragrant, pink; June to August. Berries small, globular, red; ripe in September.

E. *Prostrate. Leaves persistent. Flowers terminal, aggregate.*

♃ 15. *D.* CNEO'RUM *L.* The Garland-flower, *or trailing*, Daphne.

*Identification.* Lin. Sp., 511., Syst., 371.; Willd. Sp. Pl., 2. p. 422.; Bot. Mag., t. 313.; Lodd. Cat. ed. 1836.
*Synonymes.* Cneòrum *Matth. Hist.* 46., *Clus. Hist.* 89.; Thymélée des Alpes, *Fr.*; wohlriechender Seidelbast, *Ger.*
*Engravings.* Jacq. Aust., 5. t. 426.; Bot. Mag., t. 313.; Bot. Cab., t. 1800.; and our *fig.* 1352.

*Spec. Char., &c.* Evergreen. Stems trailing. Leaves lanceolate, glabrous, mucronate. It flowers twice a year. The flowers are terminal, aggregate, sessile, red upon the upper side, and the groups of them are surrounded by leaves. (*Willd.*) A trailing evergreen shrub. Switzerland, Hungary, the

Pyrenees, Mount Baldo, Germany, and France. Height 1 ft. Introduced in 1752. Flowers bright pink, sweet-scented; April, and again in September. Berries white, small, globose, seldom produced in England.

*Varieties.*

D. C. 2 *fòliis variegàtis.* — The leaves have a narrow portion of yellow at the edges.

D. C. 3 *flòre álbo.* — Flowers white.

The prettiest species of the genus, more especially when grafted 1 or 1½ foot high on *D. Laurèola*. It is also valuable for rockwork, and growing in pots, on account of its dwarf habit, and the beauty and delightful fragrance of its flowers. For ordinary purposes it is propagated by layers, and it thrives best in peat soil kept rather moist.

1352. *D. Cneòrum*

## Genus II.

### DI'RCA *L.* The Dirca, *or* *Leather-wood.* *Lin. Syst.* Octándria Monogýnia.

*Identification.* Lin. Amœn. Acad., 3. p. 12.; N. Du Ham., vol. iii. p. 193.; Bot. Reg., t. 292.
*Synonyme.* Thymelæ'a *Gron. Virg.* 155.
*Derivation.* From *dirkē*, a fountain; the plant growing in watery places.

*Gen. Char.* *Calyx* inferior, funnel-shaped, ending in 4—5 unequal teeth, pale yellow, resembling a corolla. *Stamens* 8. *Styles* thread-shaped. *Stigma* a simple point. *Fruit* a dry earpel. (*Willd.*)

*Leaves* simple, alternate, exstipulate, deciduous; coriaceous. *Flowers* terminal, appearing before the leaves, yellowish.—A shrub of a yellow aspect, and with the habit of a miniature tree; native of Virginia. Peat soil kept moist; and it is readily propagated by imported seeds, or by layers.

1. D. palu'stris *L.* The Marsh Dirca, *or* *Leather-wood.*

*Identification.* Lin. Amœn. Acad., 3. p. 12.; Willd. Sp. Pl. 2. p. 424.; Pursh Sept., 1. p. 268.
*Synonymes.* Moorwood; Bois de Cuir, Bois de Plomb, *Fr.*; Sumpf Lederholz, *Ger.*
*Engravings.* Lin. Amœn. Acad., 3. t. 1. f. 7.; Bot. Reg., t. 292.; and our *fig.* 1353.

*Spec. Char., &c.* Leaves lanceolate, oblong, alternate, pale green, villous beneath, and deciduous. (*Willd.*) A low deciduous branchy shrub, with the habit of a miniature tree. Virginia. Height 3 ft. to 4 ft. Introduced in 1750, and common in collections of peat-earth shrubs. Flowers yellow; March.

The whole plant has a yellow aspect, and the flowers are of a brighter yellow than the leaves, without the admixture or contrast of any other colour; thus producing a monotonous appearance rare among plants. The flowers are produced while the plant is leafless, and, in England, they are seldom, if ever, followed by seeds. The bud of the shoot of the same year is enclosed in the bud of the inflorescence. The young plants are very liable to be eaten by snails Propagated by layers, which require two years to root properly, or by American seeds.

1353. D. palustris.

# Order LXI. *SANTALA'CEÆ.*

*Ord. Char. Perianth* superior, 4—5-cleft, coloured inside; æstivation valvate. *Stamens* 4—5, opposite the segments of the perianth, and inserted in their bases. *Ovarium* inferior, 1-celled, 2—4-seeded. *Style* 1. *Stigma* generally lobed. *Fruit* 1-seeded, nucumentaceous or drupaceous. *Albumen* fleshy. *Flowers* polygamous. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; entire. *Flowers* in corymbs, pedunculate.—Trees or shrubs, deciduous; natives of North America and the South of Europe; propagated by seeds. The hardy species are two, which are thus contradistinguished: —

Ny'ss*A* L. Flowers polygamous. Stamens 5.
Osy'ris *L.* Flowers diœcious. Stamens 3.

## Genus I.

NY'SS*A* L. The Nyssa, *or Tupelo Tree. Lin. Syst.* Polygàmia Diœ'cia; or, according to Smith in Rees's *Cyclopædia*, Decándria Monogýnia.

*Identification.* Lin. Gen., 551.; Willd. Sp. Pl., 4. p. 1112.
*Derivation.* From *Nyssa*, a water nymph so called; a name given to this plant by Linnæus, because "it grows in the waters." (*Hort. Cliff.*) Tupelo appears to be an aboriginal name.

*Gen. Char. Flowers* bisexual and male, upon distinct plants, and apetalous. —*Bisexual flower* of the calyx connate. *Stamens* 5. *Ovary* ovate. *Styles* simple. *Stigma* acute. *Fruit* a roundish drupe.—*Male flower* with the calyx 5-parted. *Stamens* 5—12. (*G. Don.*)

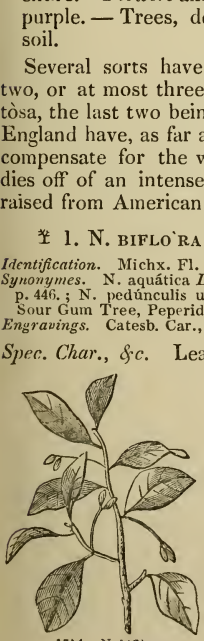
*Leaves* simple, alternate, exstipulate, deciduous; oblong or lanceolate, entire. *Flowers* axillary, peduncled, greenish white. *Fruit* red, or blackish purple. — Trees, deciduous; natives of North America; requiring moist soil.

Several sorts have been described by botanists, probably all referable to two, or at most three, species, viz. N. biflòra, N. cándicans, and N. tomentòsa, the last two being very nearly allied. The trees which have flowered in England have, as far as we are aware, only produced male blossoms; but, to compensate for the want of fruit, the foliage of all the species of the genus dies off of an intensely deep scarlet. The different sorts are almost always raised from American seeds.

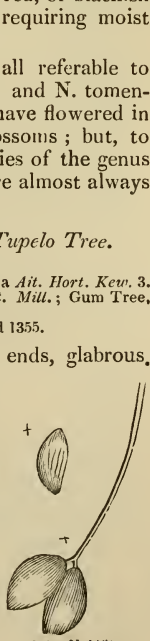
♃ 1. N. biflo'ra *Michx.* The twin-flowered Nyssa, *or Tupelo Tree.*

*Identification.* Michx. Fl. Bor. Amer., 2. p. 259.; Willd. Sp. Pl., 4. p. 1113.
*Synonymes.* N. aquática *Lin. Sp. Pl.* 1511.; N. caroliniàna *L.*; N. integrifòlia *Ait. Hort. Kew.* 3. p. 446.; N. pedúnculis uniflòris *Gron. Virg.* 121.; Mountain Tupelo *Mart. Mill.*; Gum Tree, Sour Gum Tree, Peperidge, *Amer.*
*Engravings.* Catesb. Car., 1. t. 41.; Mich. Arb., t. 22.; and our *figs.* 1354. and 1355.

*Spec. Char., &c.* Leaves ovate-oblong, entire, acute at both ends, glabrous. Female flowers two upon a peduncle. Drupe short, obovate; nut striated. (*Michx.*) A deciduous tree. Virginia and Carolina, in watery places. Height 40 ft. to 45 ft. Introduced in 1739. Flowers greenish; April and May. Fruit black, about the size of a pea, never seen in England.



1354. N. biflòra.



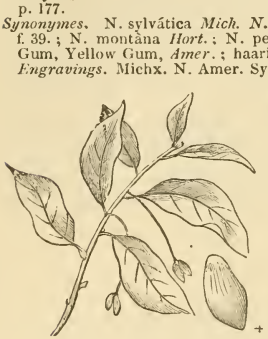
1355. N. biflora.

In British gardens it does not appear that much pains have ever been taken to encourage the growth

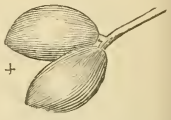
of this or any other species of Nýssa; for though there are abundance of plants to be procured in the nurseries, yet there are very few of a tree-like size to be seen in pleasure-grounds. To insure the prosperity of the tree, it ought always to be planted in moist peat, or near water.

♆ 2. N. (B.) VILLO'SA *Michx.* The hairy-*leaved* Nyssa, *or Tupelo Tree.*

*Identification.* Michx. Fl. Bor. Amer., 2. p. 258.; Willd. Sp. Pl., 4. p. 1112.; Pursh Sept., 1. p. 177.
*Synonymes.* N. sylvática *Mich. N. Amer. Syl.* 3. p. 33.; N. multifìdra *Wangenh. Amer.* 46. t. 16. f. 39.; N. montàna *Hort.*; N. pedúnculis multifìdris *Gron. Virg.* 121.; Sour Gum Tree, Black Gum, Yellow Gum, *Amer.*; haariger Tulpelobaum, *Ger.*
*Engravings.* Michx. N. Amer. Syl., 3. t. 110.; and our *figs.* 1356. and 1357.


1356. N. (b.) villòsa

*Spec. Char., &c.* Leaves oblong, entire, acute at both ends; with the petiole, midrib, and edge villous. Female flowers about three upon a peduncle. Peduncle of female flowers long, and for the most part two-flowered. Nut small, ovate, obtuse, striated. (*Michx.*) A deciduous tree. Carolina to Georgia. Height 60 ft. to 70 ft.; in England 10 ft. to 15 ft. Introduced in 1824, and occasionally met with in collections. Flowers greenish; April and May. Fruit black, as in the preceding kind.


1357. N. (b.) villòsa.

♆ 3. N. (B.) CA'NDICANS *Michx.* The whitish-*leaved* Nyssa, *or Ogechee Lime Tree.*

*Identification.* Michx. Fl. Bor. Amer., 2. p. 259.; Willd. Sp. Pl., 4. p. 1113.
*Synonymes.* N. capitàta *Walt., Ait. Hort. Kew., Michx. N. Amer. Syl.* 3. p. 43.; N. coccínea *Bartram*; Sour Tupelo Tree, Ogechee Lime Tree, Wild Lime; weisslicher Tulpelobaum, *Ger.*
*Engravings.* Michx. N. Amer. Syl., 3. t. 113.; and our *fig.* 1358.

*Spec. Char., &c.* Leaf with the petiole very short, and the disk oblong, wedge-shaped at the base, nearly entire, whitish on the under surface. Female flowers one upon a peduncle. It varies, with its leaves obovate, entire, or rarely subdentate. The male flowers are grouped into little heads. The bracteas attending the female flowers are short; the calyx of these flowers is tomentose; its lobes are short. The drupe is oblong. (*Michx.*) A deciduous tree. Carolina, on the banks of rivers, particularly the Ogechee. Height 30 ft. Introduced in 1806. Flowers greenish yellow; April and May. Fruit dark blue; ripe in September.

1358. N. (b.) càndicans

1359 N. (b.) grandidentàta.

♆ 4. N. (B.) GRANDIDENTA'TA *Michx.* The deeply-toothed-*leaved* Nyssa, *or Large Tupelo Tree.*

*Identification.* Michx. N. Amer. Syl., 3. p. 40.
*Synonymes.* N. tomentòsa, and N. angulizans, *Michx. Fl. Bor. Amer.* 2. p. 259.; N. denticulàta *Ait. Hort. Kew.* 3. p. 446.; N. angulòsa *Poir.*; N. uniflòra *Wangenh. Amer.* p. 83.; Wild Olive, *Amer.*; Virginian Water Tupelo, *Mart. Mill.*
*Engravings.* Catesb. Car., 1. t. 60.; Michx. N. Amer. Sylva, 3. t. 112.; and our *fig.* 1359., and *fig.* 1360. showing the nut.

*Spec. Char., &c.* Leaf with a long petiole and a disk that is oblong, acuminate, distantly serrate, and invariably toothed with a large pointed tooth. Female

1360.

flowers one upon a peduncle. Bracteas rather longer than the ovary. Lobes of the calyx wedge-shaped. Drupe oblong. (*Michx.*) A deciduous tree. South Carolina and Georgia. Height 70 ft. to 80 ft.; in England 10 ft. to 12 ft. Introduced in 1735. Flowers greenish; April and May. Fruit dark blue; ripe in September.

## Genus II.

OSYRIS *L.* The Osyris, *or Poet's Casia.* *Lin. Syst.* Diœ'cia Triándria.

*Identification.* Lin. Gen. Pl.; Willd. Sp. Pl., 4. p. 715.
*Synonyme.* Càsia *Camer., Lob., Alpin., Gesn.*
*Derivation.* The *Osuris* of Pliny and Dioscorides is so named from *oxos*, a branch; from the length and pliability of the branches.

*Gen. Char.* *Flowers* apetalous, unisexual, at least in effect; those of the two sexes upon distinct plants.—*Male.* *Flowers* borne in lateral racemes, about 3—5 in a raceme, and disposed in 1—2 pairs, with a terminal odd one. *Calyx* spreadingly belt-shaped, 3-parted; its æstivation valvate. *Nectary* disk-like, 3-cornered. *Stamens* 3, arising from the nectary, alternate to its angles, and opposite to the lobes of the calyx. *Anthers* of 2 separate lobes that open inwards.—*Female.* *Flowers* solitary. *Calyx* urceolate; its tube connate with the ovary; its limb free, 3-cleft. *Style* single. *Stigmas* 3. *Fruit* globose, fleshy, exteriorly crowned by the limb of the calyx, and the remains of the style. *Carpel* with crustaceous brittle walls. (*Willd.*)

*Leaves* simple, alternate, exstipulate, deciduous or sub-evergreen; entire, small, linear lanceolate. *Flowers* white, peduncled.—Shrub, deciduous or sub-evergreen; native of South of Europe.

1. *O.* A'LBA *L.* The white-*flowered* Osyris, *or Poet's Casia.*

*Identification.* Lin. Sp. Pl., 1450.; Willd. Sp. Pl., 4. p. 715.
*Synonymes.* *O.* fòliis lineáribus acùtis *Lagfl. It.* 169.; *O.* frutéscens baccífera *Bauh. Pin.* 212.; Càsia poëtica Monspeliénsium *Cam. Epit.* 26.; Càsia Latinòrum *Alp. Exot.* 41.; Càsia Monspèlii dicta *Gesn. Epit.* 50.; weisse Osyris, *Ger.*
*Engravings.* Lam. Ill., t. 802.; and our *fig.* 1361.

*Spec. Char., &c.* Stem roundish, striated. Leaves alternate, linear-lanceolate, 1 in. long, entire, glabrous. Flowers upon the branchlets, peduncled. (*Willd.*) A low, spreading, deciduous or sub-evergreen shrub. Italy, Spain, Montpelier, and Carniola. Height 3 ft. to 4 ft. Introduced in 1793. Flowers white; July and August. Drupe red, about the size of a pea.

The long supple branches of this shrub were formerly used for brushes, and they are still used in making crates, or packing-cases, in the South of Europe. Propagated by seeds, and grown in dry soil, but somewhat difficult to preserve.

1361. *O.* álba.

## Order LXII. *ELÆAGNA'CEÆ.*

*Ord. Char.* *Perianth* tubular, entire, 2—4-lobed, persistent. *Stamens* 3—4 to 8, alternating with the segments. *Anthers* nearly sessile, introrse. *Ovarium* free, 1-celled, 1-seeded. *Style* short. *Stigma* simple, subulate, glandular, or tongue-shaped. *Fruit* enclosed in the pulpy, persistent, enlarged tube of the perianth. *Albumen* thin or fleshy. (*G. Don.*)

*Leaves* simple, alternate or opposite, exstipulate, deciduous; oblong or lanceolate, entire. *Flowers* axillary.—Shrubs or low trees, deciduous;

natives of Europe, Asia, and North America; propagated by seeds, or cuttings of the roots, in dry soil. The genera are three, which are thus contradistinguished: —

*Elæa'gnus Tourn.* Flowers polygamous. Calyx 4-lobed. Stamens 4.
*Hippo'phae L.* Flowers diœcious. Calyx of 2 petals. Stamens 4.
*Shephe'rdia* Nutt. Flowers diœcious. Calyx 4-cleft. Stamens 8.

## Genus I.

### ELÆA'GNUS *Tourn.* The Elæa'gnus, *Oleaster, or Wild Olive Tree. Lin. Syst.* Tetrándria Monogýnia.

*Identification.* Tourn. Cor., 51.; N. Du Ham., 2. p. 87.
*Synonymes.* Chalef, *Fr.*; Wilde Oelbaum, *Ger.*; Eleagno, *Ital.*
*Derivation.* "The *elaiagnos* of Theophrastus was a plant with hoary leaves, growing in marshy places in Arcadia, and was probably a species of *S*àlix, although certainly not *S.* babylónica, as Sprengel has stated it to be. It was named from its resemblance to the *elaia*, or olive, from which it differed in not bearing fruit. Dioscorides writes *elæagros*, which means the wild olive; and some botanists have adopted this reading, which is most likely the true one. The plants to which the name *E*læágnus is now applied are also something like the olive. The French call the *E*læágnus, chalef; a slight alteration according to Golius, of *khalíf*, the Arabic name of the willow; but more probably of *kalaf*, the Persian name of the *E*læágnus itself." (*Lindley* in *Bot. Reg.*, t. 1156.) Oleaster is a Latin word, which is interpreted a wild olive tree; and perhaps it is derived from *olea*, an olive tree, and *instar*, likeness.

*Gen. Char., &c.* *Flowers* some bisexual, some male only; both kinds on one plant. — *Bisexual flower. Calyx* resembling, internally, a corolla, tubular below, bell-shaped above, with a slightly spreading lobed deciduous limb. *Lobes* mostly 4; the tubular part includes the ovary and part of the style, and bears at its mouth a conical crown, through which the style passes. *Style* long. *Stigma* clavate, or coiled. *Stamens* arising from the bottom of the bell-shaped part, shorter than it, alternate with its lobes; the filaments adnate to it, except at their tip. *Ovary* oblong. *Fruit* an achenium — *Male flower. Calyx* resembling, internally, a corolla, bell-shaped, with a limb of 4—6—8 lobes. *Stamens* of the number of the lobes, otherwise as in the bisexual flower. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; bearing, as does the bark of growing shoots, scales or stars of hairs. *Flowers* axillary, pediceled. *Fruit*, in some, edible. — Shrubs or low trees, deciduous; natives of Europe, Asia, and North America; which grow freely in any soil tolerably dry, and are readily propagated by seeds, layers, or cuttings.

#### ♃ 1. *E.* horte'nsis *Bieb.* The Garden Elæagnus, *Oleaster, or Wild Olive Tree.*

*Identification.* Bieb. Fl. Taur. Cauc., p. 113.
*Synonymes.* *E.* angustifòlia *L.*, *Willd. Sp. Pl.* 1. p. 688.; *E.* songárica *Fisch.*; *E.* inérmis *Mill. Dict.* No. 2.; *E.* argénteus *Mœnch Meth.* p. 638.; *E.* orientàlis *Delisle*; ? *E.* argéntea *Wats. Dend. Brit.* t. 161.; Jerusalem Willow; Olivier de Bohème, Chalef à Feuilles étroites, *Fr.*; schmalblättriger Oleaster, *Ger.*; Albero di Paradiso, *Ital.*
*Engravings.* N. Du Ham., 1. t. 89.; Bot. Reg., t. 1156.; the plate in Arb. Brit., 1st edit., vol. vii.; and our *figs.* 1362. and 1363.

*Spec. Char., &c.* Leaves lanceolate, hoary all over, as are the shoots of the current year, with stars of hairs of a hoary colour. Branches brown and smooth, more or less spiny. Leaves 2 in. to 3 in. long; upon the upper surface whitish green, and upon the under one very hoary. Flowers 2 or 3 together, axillary, upon short peduncles, fragrant: bisexual flowers 4-cleft, interior of a pale yellow; male ones 5- or more cleft, interior of a golden yellow. Both are furnished on the exterior with stars of hairs, like the under surface of the leaves. A large deciduous shrub or low tree. South of Europe, in Bohemia, France, Spain, the Levant, Tartary, and various parts of Asiatic Russia. Height 15 ft. to 20 ft. Introduced in 1633. Flowers pale yellow, fragrant; May. Fruit red brown colour, something like a date; ripe in October.

1362. *E.* h. angustifòlia.

*Varieties.*

♆ E. *h.* 1 *angustifòlia* Bieb. *E.* angustifòlia *L.* (*fig.* 1362.) — Leaves lanceolate, shining. Fruit insipid. This is the most common sort in British gardens.

♆ E. *h.* 2 *dactylifórmis.* — Leaves lanceolate, shining. Fruit date-shaped, eatable.

♆ E. *h.* 3 *orientàlis.* *E* orientàlis *L.* (Pall. Fl. Ross., i. t. 5.; and our *fig.* 1363.) — Branches not spiny. Fruit date-shaped, eatable; almost as large as that of a jujube, and used in the dessert in Persia, where it is called zinzeyd. The flowers are more fragrant than those of *E.* h. angustifòlia. Horticultural Society's Garden.

1363. *E.* h. orientàlis.

♆ E. *h.* 4 *spinòsa.* *E.* spinòsa *L.* — Branches spiny. Leaves lanceolate. Fruit insipid. Nepal. Horticultural Society's Garden.

The silvery whiteness of the foliage of this tree renders it a most conspicuous object in plantations; and hence, in any landscape where it is wished to attract the eye to a particular point, it may be usefully employed.

♣ 2. *E.* ARGE'NTEA *Ph.* The silvery-*leaved* Elæagnus, *or Wild Olive Tree.*

*Identification.* Pursh Sept., 1. p. 114.; Nutt. Gen. Amer., 1. p. 97.; Lodd. Cat., ed. 1836.
*Synonyme.* Missouri Silver Tree, *U. S. of N. Amer.*
*Engraving.* Our *fig.* 1364. from a dried specimen, which Mr. Shepherd of the Liverpool Botanic Garden received from Mr. Nuttall.

1364. *E.* argéntea.

*Spec. Char., &c.* Not spiny. Leaves waved, oval-oblong, rather acute, glabrous on both surfaces, and covered with silvery scales. Flowers aggregate, nodding. Sexes apparently diœcious. Fruit roundish-ovate, about the size of a small cherry, cartilaginous, covered with silvery scales, having 8 grooves; the flesh dry, farinaceous, eatable; the nucule subcylindric, its exterior part consisting of a tenacious woolly integument. A bushy deciduous shrub or low tree. Hudson's Bay; and found on the argillaceous broken banks of the Missouri, near Fort Mandan. Height 8 ft. to 13 ft. Introduced in 1813. Flowers yellow; July and August.

According to Pursh, Shephérd*ia* argéntea *Nutt.* resembles the *E*læágnus argéntea *Pursh* so much, without the fruit, that, in this state, one might easily be mistaken for the other.

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♣ E. *salicifòlia* ? D. Don (*fig.* 1366.) is a species apparently very distinct, and tolerably hardy, of which we have only seen one plant about 3 ft. high, in the arboretum at Kew. It promises to be a most valuable addition to our nearly hardy shrubs.

1365. *E.* conférta

♣ E*læágnus conférta* Hort., and our *fig.* 1365. from a living plant in the Horticultural So-

1366 *E.* salicifòlia.

ciety's Garden, promises to be hardy; but the only plants which we have seen are too young to enable us to decide with certainty.

## Genus II.

### *H*IPPO'PHAE *L.* The Hippophae, *Sea Buckthorn, or Sallowthorn. Lin. Syst.* Diœ'cia Tetrándria.

*Identification.* Lin. Gen., 517., in part.
*Synonymes.* Rhamnöides *Tourn. Cor.* 53.; Argoussier, *Fr.*, Haffdorn, or Sanddorn, *Ger.*; Ippofae, *Ital.*; Espino amarillo, *Span.*
*Derivation. Hippophaes*, or *Hippophues*, was the name of a shrub mentioned by Theophrastus and Dioscorides; and which is supposed to be the same as the hippophyes of Pliny. The derivation is supposed to be from *hippos*, a horse, and *phaō*, to brighten; and, as according to the *Nouveau Du Hamel* the plant was employed by the Greeks as a medicine for horses, it may have been given to them to make their coats sleek and shining, and have thus procured its name.

*Gen. Char., &c. Flowers* unisexual, diœcious. — *Male flower. Calyx* arched, seeming as if constituted of two leaves connate at the tip. *Stamens* 4, not extended out of the calyx. — *Female flower. Calyx* tubular, cloven at the top, including the ovary, and becoming at length succulent. *Style* short. *Stigma* long. *Fruit* a polished achenium, furrowed at one side, with an acid juice. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; narrow, entire, scaly, and silvery, especially beneath. *Flowers* axillary, pedunculate, small. *Fruit* succulent, eatable. — Shrubs or low trees; natives of Europe and Asia. Ornamental in British gardens, on account of their grey silky foliage, and of their berries. Propagated by seeds, layers, or suckers, in common soil; and valuable in scenery as attracting attention by their white aspect, and standing the sea breeze.

♆ ♠ 1. *H.* Rhamnöi'des *L.* The Buckthorn-like Hippophae, *Sea Buckthorn, or Sallowthorn.*

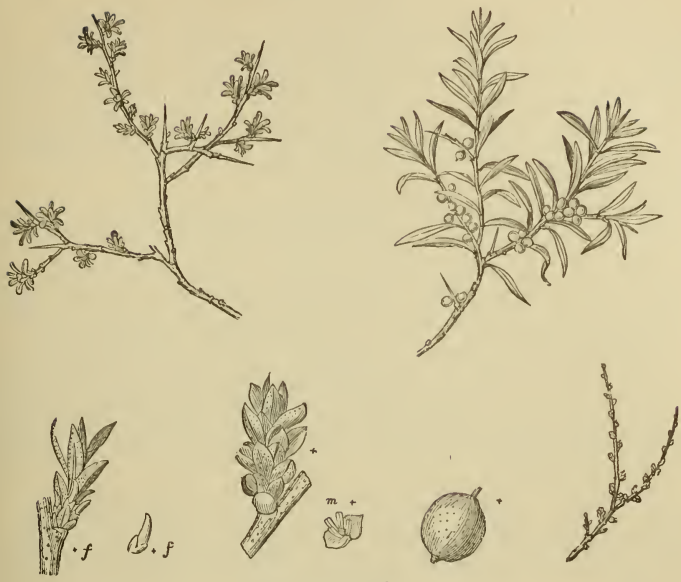
*Identification.* Lin. Sp. Pl., 1452.; Smith Eng. Flora, 4. p. 238.; Eng. Bot., t. 425.
*Synonymes.* Rhamnöides florifera sálicis fólio *Tourn. Cor.* 53.; Rhamnöides fructífera *Raii Syn.* 445.; Argoussier faux Nerprun, *Fr.*; Weidenblättriger Sanddorn, *Ger.*; in the Alps of Switzerland it is called Arve, or Saule épineux.
*Engravings.* Eng. Bot., t. 425.; Fl. Dan., t. 265.; N. Du Ham., 6. t. 80.; and our *fig.* 1367.

*Spec. Char., &c.* Branches each ending in a spine. Leaves linear-lanceolate, mostly bluntish, dark green, and minutely dotted, not scaly on the upper side; silvery as well as scaly on the under one. (*Smith.*) A low deciduous tree or large shrub. Europe, on sandy sea coasts; in England, in various places on the east and south-east coast; but not in Scotland. Height 15 ft. to 20 ft. Flowers yellow; May. Berries bright orange-coloured, and produced in great abundance; ripe in September, and remaining on the tree as long as the leaves, and frequently till the following spring.

1367. *H.* Rhamnöides.

*Varieties.*

♆ ♠ H. *R.* 2 *angustifólia* Lodd. Cat. ed. 1836. (The plate of this tree in *Arb. Brit.*, 1st edit., vol. vii.; and our *fig.* 1368., of the female sex.)—The leaves are obviously more narrow than those of the species; the young branches are pendulous; and the tree is highly ornamental, more especially when in fruit.




1368. *H.* R angustifòlia.

♈ ♒ H. *R.* 3 *sibírica.* *H.* sibírica *Lodd. Cat.* ed. 1836.—Appears to differ very little, if at all, from the species.

In British nurseries, plants are commonly increased by suckers, which are produced in abundance; and a deep sandy soil is suitable for growing the plant to a large size. It may be planted in elevated and exposed situations, and on the sea coast, where few other trees will grow.

♈ ♒ 2. *H.* SALICIFO'LIA *D. Don.* The Willow-leaved Hippophae, *Sea Buckthorn, or Sallowthorn.*

*Identification.* Don Prod. Fl. Nep , p. 68.
*Synonyme.* *H.* conférta *Wall.* in *MSS. of the Catalogue of the Linnæan Society's Indian Herbarium, Royle's Illust.* p. 323.
*Engraving.* Our *fig.* 1369. from a living specimen.

*Spec. Char., &c.* Without thorns, upright, branched. Leaves lanceolate, obtuse, whitely tomentose, as are the branchlets. A large deciduous shrub or low tree. Sirinagur, in Nepal. Height 15 ft. to 20 ft. Introduced in 1822. Flowers and fruit as in *H.* Rhamnöìdes.

A much more robust species than *H.* Rhamnöìdes, though probably more liable to be injured by frost. The shoots produced in one season, from a plant cut down, are 5 or 6 feet in length, and the leaves about twice the length of those of the common species, much less silvery, and closely resembling those of Sàlix viminàlis. The aspect of this species is less white than that of *H.* Rhamnöìdes.

1369. *H* salicifòlia.

## Genus III.

### SHEPHE'RD*IA* Nutt. The Shepherdia. *Lin. Syst.* Diœ'cia Octándria.

*Identification.* Nutt. Gen. Amer., 2. p. 240.
*Synonyme.* *H*ippóphae *L.*, as to the species S. canadénsis *Nutt.*
*Derivation.* Named by Nuttall, in honour of the late Mr. *John Shepherd*, curator of the Botanic Garden of Liverpool, a horticulturist to whose exertions, and the patronage of the celebrated Roscoe, that institution owes its present eminence.

*Gen. Char., &c.* *Flowers* unisexual, diœcious. *Male flower.* *Calyx* 4-cleft. *Stamens* 8, included within the calyx, alternate with 8 glands. — *Female flower.* *Calyx* bell-shaped; its limb 4-parted, flat, the portions equal; its tube adnate to the ovary. *Style* 1. *Stigma* oblique. (*G. Don.*)

*Leaves* simple, opposite, exstipulate, deciduous; entire, with silvery scales. *Flowers* axillary, aggregate; the female ones smaller than the males, and sometimes racemose at the ends of the branches. *Berries* diaphanous, scarlet, acid, eatable. — Shrubs or low spinescent trees, deciduous, with the aspect of *E*læágnus; native of North America. Culture, in British gardens, as in *H*ippóphae.

#### ♃ ☿ 1. S. arge'ntea *Nutt.* The silver-*leaved* Shepherdia.

*Identification.* Nutt. Gen. Amer., 2. p. 240.
*Synonymes.* *H*ippóphae argéntea *Pursh Sept.* 1. p. 115.; Missouri Silver Leaf, and Buffalo Berry Tree, *Amer.*; Rabbit Berry, and Beef Suet Tree, *Amer. Indians*; Graise de Buffle, or Buffalo Fat, *French Traders.*
*Engravings.* Our *fig.* 1370.; and *fig.* 1371. from the original specimen sent by Nuttall to Mr. Shepherd of Liverpool.

1370. S. argéntea.

*Spec. Char., &c.* Leaves oblong-ovate, obtuse; on both surfaces glabrous, and covered with silvery peltate scales. (*Pursh.*) A small tree. North America, on the banks of the Missouri, and its tributary streams. Height 12 ft. to 18 ft. Introduced in 1818. Flowers yellow; April and May. Berries scarlet, diaphanous, acid; ripe in September.

1371. S. argéntea.

Its fruit, which is much relished in America, is about the size of the red currant, much richer to the taste, and forms one continued cluster on every branch and twig.

#### ♃ 2. S. canade'nsis *Nutt.* The Canadian Shepherdia.

*Identification.* Nutt. Gen. Amer., 2. p. 241.
*Synonyme.* *H*ippóphae canadénsis *Lin. Sp. Pl.* 1453., *Willd. Sp. Pl.* 4. p. 744., *Pursh Sept.* 1. p. 119.
*Engraving.* Our *fig.* 1372. from a living specimen.

*Spec. Char., &c.* Leaves ovate, or cordate-ovate, opposite; green, and nearly glabrous upon the upper surface; upon the under one stellately pilose, silvery, and scaly; the scales rusty, deciduous. Branches opposite. Flowers disposed in upright racemes between the first leaves, and of half the length of these. (*Nutt.*) A deciduous shrub. North America, on the borders of lakes, in the western parts of the state of New York, in Canada, and along the St. Lawrence to its source. Height 6 ft. to 8 ft. Introduced in 1759, but not frequent in collections. Flowers yellow; April and May. Berries yellow, sweetish, but scarcely eatable; ripe in August.

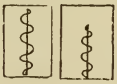
1372. S. canadénsis

# Order LXIII. ARISTOLOCHIA'CEÆ.

*Ord. Char.* *Perianth* superior, 3-cleft, equal or unequal. *Stamens* definite. *Ovarium* inferior, many-celled. *Style* short. *Stigma* divided. *Fruit* capsular or baccate. *Albumen* fleshy. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; cordate, entire. *Flowers* axillary. — Twining deciduous shrubs; natives of North America.

## Genus I.



ARISTOLO'CHIA *L.* The Birthwort. *Lin. Syst.* Gynándria Hexándria.

*Identification.* Schreb. Lin. Gen., No. 1383.; Willd. Sp. Pl., 4. p. 151.
*Synonymes.* Aristoloche, *Fr.*; Osterluzey, *Ger.*
*Derivation.* Aristolòchia was the name of a plant mentioned by Dioscorides, and considered as of sovereign use in the disorders incident to childbirth: it is derived from *ariston*, best, and *lochia*, parturition.

*Gen. Char., &c.* *Calyx* of some other colour than green, and in colour and texture resembling a corolla; in its lowest part connate with the ovary; inflated above this part, then tubular, and ending in an expanded border, which has 3 segments, and these are valvate in æstivation. *Stamens* 6, adhering to the style and stigmas. *Style* 1. *Stigmas* 6, radiating. *Capsule* with 6 cells and numerous seeds.

*Leaves* as in the Order, exstipulate, deciduous. *Flowers* yellow, brown, dark brown, and, in some, spotted on a yellow ground. — Shrubs, twining; natives of North America; of easy culture in any common soil that is dry.

♃ 1. *A.* si'pho *L'Hérit.* The Siphon-*like, or Tube-flowered,* Birthwort.

*Identification.* L'Hérit. Stirp. Nov., 13. t. 7.; Willd. Sp. Pl., 4. p. 155.
*Synonymes.* *A.* macrophýlla *Lam. Encycl.* 1. p. 252; Aristoloche Syphon, *Fr.*; grossblättrige Osterluzey, *Ger.*; Pipe Vine, or Birthwort, *Amer.*; Sifo and Pipa. *Ital.*
*Engravings.* N. Du Ham., 4. t. 10.; Bot. Mag., t. 534.; and our *fig.* 1373.

*Spec. Char., &c.* Stem twining. Leaves cordate, acute. Bractea of the peduncle ovate. Corolla ascending; its limb in 3 equal portions, not expanding flat, brown. (*Willd.*) A deciduous twining shrub. Alleghany Mountains, from Pennsylvania to Carolina. Stem 15 ft. to 30 ft. Introduced in 1763. Flowers yellowish brown; May and June.

1373. *A.* siphon.

Striking from the magnificent appearance of the leaves, and remarkable for the form of its flower, which is bent like a siphon; for the trifid border of its corolla, and for the very large bractea placed on the middle of the peduncle. The roots are woody, and have the smell of camphor. The stems, branches, and twigs are also strongly scented, as are the flowers. In British gardens, this species, to grow freely, requires a deep free soil,

dry rather than moist, and a warm situation. It is propagated by division of the root, by suckers, or by seeds, which are sometimes received from North America.

1374. *A.* tomentòsa.

2. *A.* (s.) TOMENTO'SA *Sims.* The tomentose Birthwort.

*Identification.* Sims in Bot. Mag., t. 1369.; Lodd. Cat., ed. 1836.
*Engravings.* Bot. Mag., t. 1369.; Bot. Cab., t. 641.; and our *fig.* 1374.

*Spec. Char., &c.* Stem twining. Leaves cordate, downy beneath. Peduncle solitary, without a bractea. Corolla with its tube twisted back, and much more deeply divided than in *A.* sìpho, expanding flat, and yellow, with the mouth of the tube of a deep purple. A twining deciduous shrub. North America. Height 10 ft. to 20 ft. Introd. 1799. Flowers as in *A.* sìpho.

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## ORDER LXIV. *EUPHORBIA'CEÆ.*

*ORD. CHAR. Flowers* unisexual. *Perianth* lobed or wanting, furnished inside with hypogynous glandular or scale-formed appendages. *Stamens* definite or indefinite, free or monadelphous. *Ovarium* superior, 2—3-celled. *Styles* equal in number to the cells. *Stigmas* many, distinct or combined. *Capsule* of 2—3, or more, 2-valved cells or cocci. *Seeds* solitary or in pairs, arillate, suspended. *Albumen* fleshy. (*G. Don.*)

*Leaves* simple, alternate or opposite, stipulate or exstipulate, deciduous or evergreen; quite entire. *Flowers* solitary, aggregate, terminal, lateral, or axillary. — Shrubs or small trees, natives of Europe and North America, which are thus contradistinguished: —

STILLI'NG*IA* Garden. Flowers monœcious, in spikes. Style 1. Stigmas 3.
*BU'XUS Tourn.* Flowers monœcious, in heaps. Styles 3. Stigmas 3.

### GENUS I.

STILLI'NG*IA* Garden. THE STILLINGIA. *Lin. Syst.* Monœ'cia Monadélphia.

*Identification.* "Stillingia was sent under that name to Linnæus, by the celebrated Dr. Alexander Garden." (*Smith* in *Rees's Cyclop.*) Lin. Mant., 19.; Schreb. Lin. Gen., 658.
*Derivation.* Named by Dr. Alexander Garden in honour of Mr. *Benjamin Stillingfleet*, author of a work entitled *Miscellaneous Tracts relating to Natural History*, &c., partly translated from the writings of Linnæus.

*Gen. Char. Flowers* unisexual; males in a spike, females at the base of the same spike; ? diœcious. — *Male. Flowers* seven together. *Calyx* like a corolla, of one piece, funnel-shaped, its margin jagged. *Stamens* 2—3, prominent; the filaments slightly connected at the base. — *Female. Involucre* 1-flowered. *Calyx* superior, shaped as in the male. *Style* thread-shaped. *Stigmas* 3. *Fruit* a regma, surrounded at the base by the involucre a little enlarged, somewhat turbinate, 3-lobed.

*Leaves* simple, alternate, stipulate, deciduous; entire. *Flowers* in spikes, terminal or lateral.—Shrubs, deciduous, milky; natives of North America.

1. S. LIGU'STRINA *Willd.* The Privet-*leaved* Stillingia.

*Identification.* Willd. Sp. Pl., 4. p. 588.; Pursh Fl. Amer. Sept., 2. p. 608.
*Engraving.* Our *fig.* 1375. from a specimen in Sir W. J. Hooker's herbarium.

*Spec. Char., &c.* Shrubby. Leaf consisting of a petiole, and a disk that is

oval-lanceolate, pointed at both ends, and entire. Male flowers upon very short pedicels. Female flowers ?. Male flowers disposed in spikes, part lateral, part terminal, and having a 3-cleft, rather flat, calyx, and 3 stamens that have kidney-shaped anthers; bracteas 1—2-glanded and 1-flowered. (*Nutt.*) A deciduous shrub. Carolina and Georgia, in shady woods. Height 3 ft. to 4 ft. Introduced in 1812. Flowers yellowish; June and July.

1375. S. ligústrina.

We are not aware that this species is now in existence, in a living state, in England.

## Genus II.

*BU'XUS Tourn.* The Box Tree. *Lin. Syst.* Monœ'cia Tetrándria.

*Identification.* Tourn. Inst., t. 345.; Eng. Flora, 4. p. 132.
*Synonymes.* Buis, *Fr.*; Buxbaum, Buchsbaum, *Ger.*; Bossolo, *Ital.*
*Derivation.* From *puknos*, dense; in reference to the hardness and closeness of the wood; or, perhaps, to the denseness of the foliage. The Greeks called the boxes made of this wood, which were highly esteemed for their durability, *pyxides;* and hence, probably, arose the word *pyx*, which is used for the chest containing the Host in the Roman Catholic church.

*Gen. Char. Flowers* unisexual, monœcious.—*Male. Calyx* of 4 minute leaves. *Stamens* 4, inserted under the rudiment of a pistil.—*Female. Flowers* singly, at the tip of groups of male ones. *Calyx* as in the male. *Styles* 3. *Stigmas* 3. *Fruit* a regma, leathery, beaked with the styles. (*G. Don.*)

*Leaves* simple, opposite, exstipulate, evergreen; entire, smooth, stalked. *Flowers* axillary, aggregate, whitish. *Fruit* green.—Shrubs or small trees, evergreen, with rigid leaves and whitish buds; natives of Europe and Asia; of easy culture in any soil that is tolerably dry; and propagated freely by division of the plant, by cuttings, or by seeds.

♀ ❀ 1. *B.* SEMPERVI'RENS *L.* The evergreen, *or common*, Box Tree.

*Identification.* Lin. Sp. Pl., 1394.; Smith Eng. Flora, 4. p. 133.; Baxt. Brit. Flow. Pl., 2. t. 142.
*Synonymes.* Buxus *Raii Syn.* 445.; Buis commun, Bois béni, *Fr.*; Buchsbaum, *Ger.*; Busso, Bossolo, *Ital.*
*Engravings.* Eng. Bot., t. 1341.; and our *fig.* 1377.

*Spec. Char., &c.* Disk of leaf ovate, convex; footstalk slightly downy at the edges. Anthers ovate-arrow-shaped. (*Smith.*) A low evergreen tree. Europe; in England, on Boxhill in Surrey, Chequers in Buckinghamshire, and other places, apparently wild. Height 15 ft. to 30 ft. Flowers whitish; April and May. Fruit greenish; ripe in August.

*Varieties and Subvarieties.*

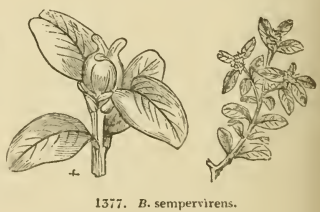
- ♀ B. *s.* 1 *arboréscens* Mill. Dict. No. 1. Buis arborescent, *Fr.*; hochstämmige Buchsbaum, *Ger.* — Arborescent. Leaves ovate. This is the most common form of the species.
  - ♀ B. *s. a. argéntea* Hort. — Arborescent. Leaves ovate, variegated with a silvery colour.
  - ♀ B. *s. a. aúrea* Hort. — Arborescent. Leaves ovate, variegated with a golden colour.
  - ♀ B. *s. a. marginàta* Hort. — Arborescent. Leaf ovate, with a margin of a golden colour.
- ♀ B. *s.* 2 *angustifólia* Mill. Dict. No. 2. — Arborescent. Leaves lanceolate.
  - ♀ B. *s. a. variegata* Hort. — Arborescent. Leaves lanceolate, variegated.

B. *s.* 3 *suffruticòsa* Mill. Dict. No. 3. *B.* hùmilis *Dod. Pempt.* 782.; *B.* s. nàna *N. Du Ham.* i. p. 83.; and our *fig.* 1376.; Buis nain, Buis à Bordures, Buis d'Artois, Buis de Hollande, petit Buis, *Fr.*; zwerch Buchsbaum, *Ger.* — Dwarf. Leaves small, obovate. This is the kind usually cultivated for edgings in European gardens.

1376. *B.* s. suffruticòsa.

B. *s.* 4 *myrtifòlia* Lam. Encyc. — Dwarf. Leaves small, oblong, narrowish. A pretty little plant; generally quite low, but, under favourable circumstances, growing to a considerable size.

In a wild state, the box seldom exceeds the height of 12 or 15 feet in Britain; but in Turkey and Asia Minor trees of it have been found as high as 25 ft. The thickness of the trunk is very considerable in proportion to its height, and, in full-grown trees, varies from 6 in. to 8 in. in diameter. The tree will bear the knife patiently, and is therefore, and from the closeness of its habit of growth, well adapted for clipped hedges, and all kinds of verdant architecture and statuary. It grows slowly, rarely making shoots of more than 6 or 8 inches annually. But the tree is of great longevity; and so hardy, that it is almost the only evergreen, exclusive of the Coníferæ, that will stand in the open air, without protection, in the gardens of Paris, Berlin, and Vienna. The wood of the box is remarkably heavy; weighing, when newly cut, 80 lb. 7 oz. per cubic foot, and, when perfectly dry, 68 lb. 12 oz. and 7 gr. It is the only European wood that will sink in water: it is yellow, very hard, and susceptible of a fine polish. The wood was formerly much used in England in cabinet-making and inlaying, as it still is in France; and, also, in both countries, for musical and mathematical instruments, combs, and various articles of turnery. The principal use of the boxwood, however, at present, is for wood-engraving; and for this purpose it is an important article of commerce. The different kinds of box tree are propagated by seeds, cuttings, and layers. When the seeds are to be sown, they should be gathered the moment the capsules appear ready to open, and sown immediately in light rich earth, well drained. Cuttings of from 4 in. to 6 in. in length should be put in, in autumn, in a sandy soil, and a shaded situation, and in a year they will be fit to transplant into nursery lines. Layers may be made either in the spring or autumn, and either of the young or old wood. The dwarf box used for edgings is propagated by being taken up, divided, and replanted. Box edgings are best planted early in spring, because the frost in winter is apt to destroy those leaves which have been cut in trimming the plants. Box edgings and hedges may be clipped at almost any season, except midwinter. Some gardeners prefer trimming box edgings in June, just when the plants have nearly completed their year's shoots; because they will afterwards make shoots of ½ in. or 1 in. in length, or, at all events, protrude a few leaves, and thus, in a week or two, conceal all appearance of the use of the shears. When this practice is followed, it is necessary to go over the edgings or hedges in July, in order to cut neatly off with the knife any shoots that may have been protruded too far; taking care not to cut the leaves.


1377. *B.* sempervirens.

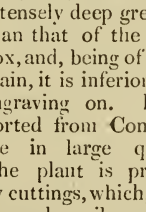
2. *B.* BALEA'RICA *Willd.* The Balearic Box.

*Identification.* Willd. Arb., 50., Sp. Pl., 4. p. 337.; ? Lam. Encyc., 1. p. 505.
*Synonymes.* *B.* s. var. gigantèa *N. Du Ham.* 1. p. 82.; Minorca Box; Buis de Minorque, Buis de Mahon, *Fr.*; Balearischer Buchsbaum, *Ger.*; Bossolo gentile, *Ital.*
*Engravings.* N. Du Ham., pl. 23. f. 1.; and our *figs.* 1378. and 1379.

*Spec. Char., &c.* Disk of leaf oblong; footstalk glabrous. Anthers arrow-shaped, linear. (*Willd.*) An evergreen tree; in England a large shrub. Minorca, Sardinia, Corsica, and Turkey, on rocky surfaces. Height 80 ft. in England 15 ft. to 20 ft. Introduced in 1780. Flowers yellowish green; July. Fruit greenish; ripe in October.

1378. *B. baleárica.*

A very handsome species, with leaves three times as large as those of *B. sempervirens*, and a straight smooth trunk. The leaves, when the plant is fully exposed to the air, are of a much paler green than those of the common box; but, when they are in the shade, they are of an intensely deep green. The wood is of a brighter yellow than that of the common box, and, being of a coarser grain, it is inferior to it for engraving on. It is imported from Constantinople in large quantities. The plant is propagated by cuttings, which, if placed in sandy soil under glass, or in heat, generally strike root in about two months after being taken off. Cuttings will also succeed, if treated like those of the common box.



1379. *B. baleárica.*

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## Order LXV. ARTOCA'RPEÆ.

*Ord. Char.* *Flowers* unisexual, disposed in heads or catkins; perianth usually divided, but sometimes tubular and entire. *Stamens* solitary or several. *Ovarium* free, 1—2-celled. *Ovulum* orthotropous. *Style* 1. *Stigma* bifid. *Fruit* a sorosis. *Seeds* solitary. *Albumen* thin. *Radicle* superior. (*G. Don.*)

*Leaves* simple, alternate, stipulate or exstipulate, deciduous; lobed, serrated or entire. *Flowers* axillary, obscure.—Trees, deciduous, chiefly of the middle size; natives of Europe, Asia, and North America. The genera in British gardens are thus contradistinguished:—

*Mo'rus Tourn.* Flowers monœcious. Calyx 4-sepaled. Stamens 4. Fruit a sorosis.

Broussone'*tia* L'Hérit. Flowers diœcious. Calyx 4-parted. Stamens 4. Stigmas tapering. Fruit a sorosis.

Maclu'*ra* Nutt. Flowers diœcious. Calyx 4-parted. Stamens 4. Fruit a sorosis.

*Fi'cus Tourn.* Flowers polygamous. Calyx 5-cleft. Stamens 3. Stigmas 2. Fruit a sycon.

Bo'ry*a* Willd. Flowers diœcious. Calyx 4-cleft. Stamens 2—3. Stigmas capitate. Fruit pulpy.

### Genus I.

*MO'RUS Tourn.* The Mulberry Tree. *Lin. Syst.* Monœ'cia Tetrándria.

*Identification.* Tourn.; Willd. Sp. Pl., 4. p. 368.
*Synonymes.* Mûrier, *Fr.*; Maulbeere, *Ger.*; Moro, *Ital.*
*Derivation.* Several derivations have been given for the word *Morus*; some suppose it to be taken from the Greek word *morea*, or *moron*, signifying a mulberry or blackberry; others derive it from

*mauros*, dark; and Sir J. E. Smith suggests that it may have been taken by antiphrasis from *mōros*, foolish, the mulberry tree, from its slowness in putting out its leaves, being anciently considered the emblem of wisdom. The Morea, in the Levant, is said to be so called from the resemblance of the shape of that peninsula to the leaf of a mulberry.

*Gen. Char., &c.* *Flowers* unisexual, mostly monœcious, in some diœcious or polygamous. — *Male flowers* in axillary spikes. *Calyx* of 4 equal sepals, imbricate in æstivation, expanded in flowering. *Stamens* 4. *Female flowers*. *Calyx* of 4 leaves, in opposite pairs, the outer pair the larger, all upright and persistent, becoming pulpy and juicy. *Stamens* 2, long. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; large, mostly lobed and rough. *Flowers* greenish white. *Fruit* the aggregate of the ovary and the calyxes, constituting what is termed a mulberry. — Trees, deciduous; natives of Europe, Asia, and North America. Propagated by cuttings or layers, or by large truncheons, in good soil.

The leaves of all the species will serve to nourish the silkworm; but *M. álba*, and its varieties, are considered much the best for this purpose.

✱ 1. *M.* NI'GRA *Poir.* The black-*fruited, or common*, Mulberry.

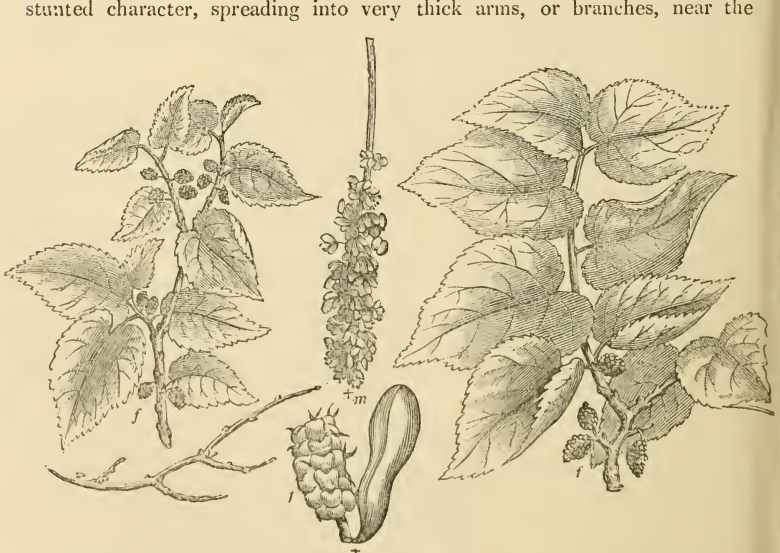
*Identification.* Poir. Ency. Méth., 4. p. 377.; Lin. Sp. Pl., 1398; Willd. Sp. Pl., 4. p. 369.
*Synonymes.* Mòrus *Dod. Pempt.* 810.; *M.* frúctu nigro *Bauh. Pin.* 459.
*Engravings.* Dend. Brit., t. 159.; N. Du Ham., 4. t. 22.; the plate in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1380.

*Spec. Char., &c.* Sexes monœcious, sometimes diœcious. Leaves heart-shaped, bluntish, or slightly lobed with about 5 lobes; toothed with unequal teeth, rough. (*Willd.*) A deciduous tree. Persia. Height 20 ft. to 30 ft. Introduced in 1548. Flowers greenish white; June. Fruit oblong, red or black; ripe in August.

*Variety.*

✱ M. *n.* 2 *laciniàta* Mill. Dict. No. 2. has the leaves jagged rather than cut.

In Britain, the common mulberry always assumes something of a dwarf or stunted character, spreading into very thick arms, or branches, near the




1380. *Mòrus nigra.*

ground, and forming an extremely large head. It is a tree of very great durability; the trees at Syon being said to be 300 years old, and some at

Oxford and other places being supposed to be of nearly equal antiquity. It is also wonderfully tenacious of life; the roots of a black mulberry, which had lain dormant in the ground for twenty-four years, being said, after the expiration of that time, to have sent up shoots. The wood is considered of but little value in France, except for firewood: it is less compact than even that of the white mulberry; and weighs only 40 lb. 7 oz. the cubic foot. Cattle eat the leaves, and all kinds of poultry are very fond of the fruit. Silkworms feed on the leaves in Persia, but in cold climates they are considered unsuitable for them. In England, the fruit is generally eaten at the dessert; and it is considered of a cooling aperient nature when ripe. The tree will grow in almost any soil or situation that is tolerably dry, and in any climate not much colder than that of London. North of York, it generally requires a wall. It is very easily propagated by truncheons or pieces of branches, 8 or 9 feet in length, and of any thickness, being planted half their depth in tolerably good soil; when they will bear fruit the following year. Every part of the root, trunk, boughs, and branches may be turned into plants by separation: the small shoots, or spray, and the small roots, being made into cuttings; the large shoots into stakes; the arms into truncheons; and the trunk, stool, and roots being cut into fragments, leaving a portion of the bark on each.

### ♆ 2. *M.* A'LBA *L.* The white-*fruited* Mulberry Tree.

*Identification.* Lin. Hort. Cliff, 441.; Willd. Sp. Pl., 4. p. 368.; N. Du Ham., 4. p. 87.
*Synonymes.* *M.* candida *Dod. Pempt.* 810.; *M.* fructu albo *Bauh. Pin.* 459.; *M.* alba fructu minori albo insulso *Du Ham. Arb.* 2. p. 24.
*Engravings.* T. Nees ab Esenbeck Gen. Pl. Fl. Germ., fasc. 3. No. 5. f. 1—6., the male; the plate in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1382.

*Spec. Char., &c.* Leaves with a deep scallop at the base, and either heart-shaped or ovate, undivided or lobed, serrated with unequal teeth, glossy, or at least smoothish; the projecting portions on the two sides of the basal sinus unequal. (*Willd.*) A deciduous tree. China. Height 20 ft. to 30 ft. Introduced in 1596. Flowers greenish white; May. Fruit white or pale red; ripe in September.

*Varieties.*

♆ M. *a.* 2 *multicaúlis* Perrottet in Ann. de la Soc. Lin. de Paris Mai 1824 p. 129., Lodd. Cat. ed. 1836; *M.* tatárica *Desf.*, but not of Lin. or Pall.; *M.* bullàta *Balbis*; *M.* cucullàta *Hort.*; Chinese black Mulberry, *Amer.*; Perrottet Mulberry; many-stalked Mulberry; Mûrier Perrottet, *Fr.*; Mûrier à Tiges nombreuses, Mûrier des Philippines, *Ann. des Sci.* i. p. 336. pl. 3.; and our *fig.* 1381.; Moro delle Filippine, *Ital.* — Considered, both in Italy and France, as by far the best variety for cultivation as food for the silkworm.

1381. *M.* a. multicaúlis.

♆ M. *a.* 3 *Morettiàna Hort., Lodd. Cat.* ed. 1836. Dandolo's Mulberry. — Fruit black and very large. Leaves perfectly flat, deep green, shining, thin, and perfectly smooth on both surfaces. Its leaves rank next to those of *M.* a. multicaúlis as food for silkworms.

♆ M. *a.* 4 *macrophýlla* Lodd. Cat. ed. 1836. *M.* a. latifòlia Hort.; *M.* hispánica *Hort.*; Mûrier d'Espagne, Feuille d'Espagne, *Fr.* — This variety produces strong and vigorous shoots, and large leaves, sometimes measuring 8 in. long, and 6 in. broad, resembling in form those of *M.* nìgra, but smooth, glossy, and succulent.

♆ M. *a.* 5 *romàna* Lodd. Cat. ed. 1836. *M.* a. ovalifòlia; Mûrier romain, *Fr.* — Bears a close resemblance to the above sort.

♆ M. *a.* 6 *nervòsa* Lodd. Cat. ed. 1836. *M.* nervòsa *Bon Jard.* 1836,

*M.* subálba nervòsa *Hort.* — Leaves strongly marked with thick white nerves on the under side.

♃ M. *a.* 7 *itálica* Hort. *M.* itálica *Lodd. Cat.* ed. 1836. — Leaves lobed. The plant bearing this name in the Jardin des Plantes has the soft wood, or cambium, of the current year's shoots of a deep red, when the bark is removed.

♃ M. *a.* 8 *ròsea* Hort., Lodd. Cat. ed. 1836. The small white Mulberry; Mûrier rose, Feuille rose, *Fr.* — One of the kinds called in France a wild variety.

♃ M. *a.* 9 *columbássa* Lodd. Cat. ed. 1836. Columba, *Fr.* — Small delicate leaves, and flexible branches.

♃ M. *a.* 10 *membranàcea* Lodd. Cat. ed. 1836. Mûrier à Feuille de Parchemin, *Fr.* — Large, thin, dry leaves.

♃ M. *a.* 11 *sinénsis* Hort. *M.* sinénsis *Hort.*; *M.* chinénsis *Lodd. Cat.* ed. 1836; the Chinese white Mulberry, *Amer.* — A large-leaved variety.

♃ M. *a.* 12 *pùmila* Nois.? *M.* a. nàna *Hort. Brit.* — A shrub, seldom exceeding 10 ft. high.

*Other Varieties.* All the above sorts are in the arboretum of Messrs. Loddiges; but in the catalogues of foreign nurserymen there are several other names, most of which will be found enumerated and described in our 1st edition, including *M.* constantinopolitàna *Poir.* (*M.* byzantìna *Sieb.*), which we believe to be nothing more than a rather distinct variety of *M.* álba.

1382. *Mòrus álba.*

The white mulberry is readily distinguished from the black, even in winter, by its more numerous, slender, upright-growing, and white-barked shoots. It is a tree of much more rapid growth than *M.* nìgra, and its leaves are not only less rough and more succulent, but they contain more of the glutinous milky substance resembling caoutchouc, which gives tenacity to the silk produced by the worms fed on them. The rate of growth of young plants is much more rapid than that of *M.* nìgra; plants cut down producing shoots 4 or 5 feet long in one season; the tree attaining the height of 20 ft. in five or six years; and, when full grown, reaching to 30 or 40 feet. Its duration is not so great as that of *M.* nìgra. The white mulberry is more tender than

*M*òrus nìgra, and requires more care in choosing a situation for it. Calcareous soil is said to produce the best silk; and humid situations, or where the roots of the tree can have access to water, the worst. A gravelly or sandy loam is very suitable; and trees grown on hilly surfaces, and poor soils, always produce superior silk to those grown in valleys, and in rich soils. The tree is propagated by seeds (sown as soon as they are gathered), cuttings, layers, and grafting.

### ☥ 3. *M.* (A.) TATA'RICA *Pall.* The Tartarian Mulberry Tree.

*Identification.* Pall. Fl. Ross., 2. p. 9. t. 52.; Lin. Sp. Pl., 1399.; Willd. Sp. Pl., 4. p. 369.
*Engravings.* Pall. Fl. Ross., 2. t. 52., and our *fig.* 1383.; both sprigs taken from one tree.

1383. *M.* (a.) tatárica.

*Spec. Char., &c.* Leaves with a shallow scallop at the base, and either heart-shaped, ovate, or lobed; serrated with equal teeth, smooth; the projecting portions beside the sinus equal. (*Willd.*) A tree resembling *M.* álba *L.*, and perhaps only a geographical variety of that species. On the banks of the rivers Wolga and Tanais, or Don. Height 20 ft. Introduced in 1784. Flowers greenishwhite; June. Fruit reddish or pale, of no good flavour, though it is eaten raw in Tartary, as well as dried, or made into a sweetmeat; ripe in September.

### ☥ 4. *M.* RU'BRA *L.* The red-*fruited* Mulberry Tree.

*Identification.* Lin. Sp. Pl., 1399.; Pursh Sept., 2. p. 639.; N. Du Ham., 4. p. 91.

1384. *M*òrus rùbra

*Synonymes.* *M.* virgínica *Pluk. Alm.* p. 253.; *M.* pennsylvánica *Nois. Arb. Fruit.*
*Engravings.* Wangenh. Amer., t. 15. f. 35.; the plate in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1384.

*Spec. Char., &c.* Sexes polygamous or diœcious. Spikes of female flowers cylindrical. Catkins of male flowers of the length of those of *B*étula álba *L.* Leaves heart-shaped, ovate, acuminate, 3-lobed or palmate; serrated with equal teeth, rough, somewhat villous; under surface very tomentose, and, in consequence, soft. (*Willd.*) A deciduous tree. Canada to Florida. Height 40 ft. to 70 ft. Introduced in 1629. Flowers greenish yellow; July. Fruit long, red, and pleasantly tasted; ripe in September.

*Variety.*

ϒ *M. r.* 2 *scàbra.* *M.* scàbra *Willd., Nutt.*; *M.* canadénsis *Poir. Lam. Dict.* 4. p. 380. — Leaves rough on both surfaces. Horticultural Society's Gardens.

Very distinct from any of the preceding species, in the spreading umbelliferous appearance of the branches, and the flat, heart-shaped, very rough-surfaced leaves, which are almost always entire, but which, nevertheless, are occasionally found as much lobed and cut as those of any other of the genus. As a tree ornamental from its very singular form, it deserves a place in every pleasure-ground; and it is particularly adapted for giving interest to the scenery of a suburban garden.

## Genus II.

BROUSSONE'T*IA* Vent. The Broussonetia. *Lin. Syst.* Diœ'cia Tetrándria.

*Identification.* Vent. Tabl. du Règne Végét., 3. p. 547.; Willd. Sp. Pl., 4. p. 743.
*Synonymes.* Mòrus Sèba Kæmpf., Lin.; Papyrus *Encyc. Bot.* 5. p. 5., *Lam. Ill. Gen.* t. 762.
*Derivation.* Named in honour of *P. N. V. Broussonet*, a French naturalist, who wrote numerous works on natural history.

*Gen. Char.* *Flowers* unisexual, diœcious.—*Male flowers* in pendulous cylindrical catkins; each flower in the axil of a bractea. *Calyx* shortly tubular, then 4-parted. *Stamens* 4, elastic. — *Female flowers* in peduncled, axillary, upright, globular heads. *Calyx* tubular, its tip with 3—4 teeth. *Style* lateral. *Stigma* taper. *Fruit* club-shaped, consisting of the integument in which the ovary was enclosed, and now become very juicy; and of a 1-seeded oval utricle, with a crustaceous integument, and enclosed within the juicy integument. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; lobed variously or entire, hairy, large. *Flowers* greenish, axillary.—Tree, deciduous; native of Japan and the Pacific Isles; culture as in the mulberry.

1. B. papyri'fera *Vent.* The Paper-bearing Broussonetia, *or Paper Mulberry.*

*Identification.* Vent. Tabl. du Règne Végét., 3. p. 547.; Willd. Sp. Pl., 4. p. 743.
*Synonyme.* Mòrus papyrífera *Lin. Sp. Pl.* 1399.
*The Sexes.* Both the male and female plants are in the Horticultural Society's Garden, and in the arboretum of Messrs. Loddiges.
*Engravings.* N. Du Ham., 2. t. 7.; the plate in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1385.

*Spec. Char., &c.* See Gen. Char. A deciduous low tree or large shrub. China, Japan, and the South Sea Islands. Height 10 ft. to 20 ft. Introduced in 1751. Flowers greenish white; May. Fruit oblong, dark scarlet, and sweet, but rather insipid; ripe in August.

*Varieties.*

*B. p.* 2 *cucullàta.* B. cucullàta *Bon Jard.* 1833 p. 919.; B. spatulàta *Hort. Brit.*; B. naviculàris *Lodd. Cat.* ed. 1836. — A sport, found on

1385. B. papyrifera.

a male plant in the Jardin des Plantes, which has its leaves curved upwards, like the hood of a Capuchin, or the sides of a boat.

✻ *B. p.* 3 *frúctu álbo.* — Fruit white.

A very singular tree, from the great variation in the form of its leaves, and also from its flowers and fruit. In general aspect it has the appearance of a mulberry, but it is less hardy than the species of that genus.

## Genus III.

MACLU'RA Nutt. The Maclura. *Lin. Syst.* Dicœ'cia Tetrándria.

*Identification.* Nutt. Gen. N. Amer. Plants, 2. p. 233.; Lindl. Nat. Syst. of Bot., p. 178.
*Synonyme.* Tóxylon *Rafinesque* in 1817, *Gard. Mag.* vol. viii. p. 247.
*Derivation.* Named by Nuttall, in honour of *William Maclure*, Esq., of the United States; an eminent natural philosopher.

*Gen. Char.* *Flowers* unisexual, dicœcious.—*Male flowers* in a racemose panicle. *Calyx* 4-parted. *Stamens* 4, or 3. — *Female flowers* closely aggregate upon an axis, and forming a globular head that is borne upon a short axillary peduncle. *Calyx* oblong, urceolar, apparently with 4 lobes at the tip. *Style* thread-shaped, downy, protruded nearly an inch beyond the calyx. *Fruit* an achenium about $\frac{3}{8}$ in. long, compressed, with the tip blunt. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; ovate, entire. *Flowers* small, yellow. — Tree, deciduous; native of North America; with a fruit as large as an orange, and when ripe of the same colour; propagated by layers, cuttings of the roots, or grafting on the common mulberry.

♃ 1. M. AURANTI'ACA *Nutt.* The Orange-like-*fruited* Maclura, *or Osage Orange.*

*Identification.* Nutt. Gen. N. Amer. Pl., 2. p. 234.
*Synonymes.* Bow-wood, Yellow Wood, *N. Amer.*
*The Sexes.* Both male and female plants are in the Horticultural Society's Garden, and in the Hackney arboretum.
*Engravings.* Appendix to Lambert's Monog. on the Genus Pinus, 2. p. 32.; and our *fig.* 1386. in which *a* is the female flower, and *b* the male; the fruit is figured of the nat. size in our 1st edit.

*Spec. Char.* See Gen. Char. A deciduous widely spreading tree, with spiny branches. In the Arkansas, and on the banks of the Red River, on deep

fertile soils. Height 30 ft. to 60 ft. Introduced in 1818. Flowers yellowish green; June. Fruit resembling a large Seville orange; ripe in October. Neither flowers nor fruit have yet been produced in England.

The leaves are ovate acuminate, of a bright shining green, broad, with a cuspidate point, 3 or 3½ inches long, and about 2 in. broad. The petiole is often 1 in. long. The spines are simple, rather strong, about 1 in. in length, and produced in the axils of the leaves. The fruit, when ripe, is of a golden colour, and on the tree has a splendid appearance; but, though eatable, it does not appear to be any where used for human food. The wood is of a bright yellow, very fine-grained, elastic, and on that account used by the southern tribes of the American Indians for bows

1386. M. aurantiaca.

## Genus IV.

### *FI'CUS Tourn* The Fig Tree. *Lin. Syst.* Polygàmia Dioe'cia.

*Identification.* Tourn.; T. Nees ab Esenbeck Gen. Pl. Fl. Germ., fasc. 3.; Willd. Sp. Pl., 4. p. 1131.
*Synonymes.* Figuier, *Fr.*; Feigenbaum, *Ger.*; Fico, *Ital.*
*Derivation.* Some derive *Ficus* from *fœcundus*, on account of its abundant bearing; and others from *sukos* (Greek), or *fag* (Hebrew), the names for the fig tree in those languages. The fig tree has nearly the same name in all the European languages.

*Gen. Char.* *Flowers* monœcious, inserted upon the interior surface of a hollow globular or pear-shaped fleshy receptacle, in whose tip is an orifice closed with small scales; those in the upper part male, the rest female. —*Male flowers. Calyx* 3-parted. *Stamens* 3.—*Female flowers. Calyx* 5-cleft. *Stigmas* 2. *Fruit* a utricle. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; lobed. *Stipules* large, convolute. *Flowers* within the fruit. — Tree, deciduous; native of the South of Europe and Asia; sap milky; cuttings in good soil.

♃ 1. *F.* Ca'rica *L.* The *common* Fig Tree.

*Identification.* Lin. Sp., 1513.; Willd. Sp., 4. p. 1131.; N. Du Ham., 4. p. 198.
*Synonymes.* *F.* commùnis *Bauh. Pin.* 457.; *F.* hùmilis and *F.* sylvéstris *Tourn. Inst.* 663.; Figuier commun, *Fr.*; gemeine Feigenbaum, *Ger.*
*Engravings.* N. Du Ham., t. 53.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1387.

*Spec. Char., &c.* Leaves palmate and subtrilobate; rough above, pubescent beneath. (*Willd.*) A low deciduous tree. Asia, on the sea coast. Height, 15 ft. to 30 ft. Cultivated in Britain from time immemorial; and ripening its fruit against walls, in the climate of London, in the month of September.

*Varieties.* Botanically, the common fig may be considered as existing in three different states: — 1. Wild, in which the leaves are comparatively small, and not much cut; and the fruit small, and sometimes blue and sometimes white. 2. Cultivated, with very large leaves, very deeply cut, such as the Blue Ischia and the Brunswick fig, and other sorts; the fruit of some of which is white, and of others dark. 3. Cultivated, with very large leaves, not much cut, as the White Marseilles fig, and others with fruit of different colours. Those who are disposed to go farther may form three subvarieties under each of these heads, according as the fruit is blue or black, red or purple, yellow, white, or green. The garden varieties are very numerous:

1387. Ficus Cárica.

for which, and their treatment, see the *Encyc. of Gard.*, and the *Suburban Horticulturist*.

## Genus V.

### BO'RYA W. The Borya. *Lin. Syst.* Dioe'cia Di-Triándria.

*Identification.* Willd. Sp. Pl., 4. p. 711.; Ait. Hort. Kew., ed. 2., vol 5.
*Synonymes.* Adèlia *Michx. Fl. Bor. Amer.* 2. p. 223.; Bigelòv*ia* Smith in Rees's Cyclop. Addenda.
*Derivation.* Named in honour of *Bory de St. Vincent*, who visited the Mauritius and the Isle of Bourbon, to examine their botany. Smith, in Rees's *Cyclopædia*, objects to the name of Bòry*a* being applied to this genus, because La Billardière had previously given the same name to another genus; and he suggests the substitution of the name of Bigelòv*ia*, in commemoration of Dr. Bigelow of Boston, author of the *Florula Bostoniensis*, and of the *American Medical Botany*.

*Gen. Char., &c.* *Flowers* unisexual, diœcious.—*Male flowers.* *Calyx* minute, in 4 deep segments. *Stamens* 2—3.—*Female flowers.* *Calyx* inferior, in 4 deep segments, deciduous. *Style* short. *Stigma* capitate, depressed. *Fruit* pulpy, oval, oblong. (*G. Don.*)

*Leaves* simple, opposite, or nearly so, exstipulate, deciduous; entire. *Flowers* axillary, fascicled, bracteated, minute. — Shrubs, deciduous, natives of North America, with the aspect of the common privet. Propagated by cuttings, and quite hardy.

#### ✠ 1. B. ligu'strina *Willd.* The Privet-like Borya.

*Identification.* Willd. Sp. Pl., 4 p. 711.; Ait. Hort. Kew., ed. 2., vol. 5.
*Synonymes.* Adèlia *ligústrina Michx. Fl. Bor. Amer.* 2. p. 224.; Bigelòv*ia ligústrina Smith* in *Rees's Cyclop. Addenda.*
*The Sexes.* The plants bearing this name in Loddiges's arboretum have not yet flowered.
*Engraving.* Our *fig.* 1388. from a living specimen.

*Spec. Char., &c.* In habit and leaves somewhat resembling *Ligústrum* vulgàre *L.* Leaves with very short petioles, and disks that are lanceolate-oblong, entire, somewhat membranous. Fruit rather shortly ovate. (*Michx.*) An erect deciduous shrub. North America, in thickets about rivers, in the countries of the Illinois, Tennessee, &c. Height 5 ft. to 10 ft. Introd. 1812. Flowers greenish; July and August.

Apparently a fit associate for *Ligústrum*, Fontanès*ia*, and *Prìnos*.

2. B. (? *L.*) ACUMINA'TA *Willd.* The acuminate-*leaved* Borya.

*Identification.* Willd. Sp. Pl., 4. p. 711.; Ait. Hort. Kew., ed. 2., vol. 5.
*Synonymes.* Adèlia acuminàta *Michx. Fl. Bor. Amer.* 2. p. 225. t. 48.; Bigelòvia acuminàta *Smith* in *Rees's Cyclop. Addenda.*
*The Sexes.* Uncertain which is in England.
*Engravings.* Michx. Fl. Bor. Amer., 2. t. 28.; and our *fig.* 1389.

1388. B. *ligústrina.*

1389. B. (? *L.*) acuminàta.

*Spec. Char., &c.* Leaves membranous, lanceolate in almost a rhombic manner; but most tapered to the outward end; 1½ in. long, serrulate. Male flowers several together in small sessile tufts, encompassed with several ovate bracteas. Female flowers stalked, very small. Fruit pendulous, elliptic-oblong, nearly 1 in. long before it is ripe, tapered to the tip in a beak-like manner. It appears that the taper lateral branches form something like thorns. (*Michx.*) Carolina and Georgia. An erect shrub, on the banks of rivers. Height 5 ft. to 10 ft. Introd. 1812. Flowers greenish.

The only difference which we can observe between B. acuminàta and B. *ligústrina* is, that the former has the leaves of a paler green, and much larger. The plant bears a general resemblance to a privet, or a large Persian lilac.

3. B. (*L.*) PORULO'SA *Willd.* The Pore-*like-dotted-leaved* Borya.

*Identification.* Willd. Sp. Pl., 4. p. 711.; Ait. Hort. Kew., ed. 2., vol. 5.
*Synonymes.* Adèlia porulòsa *Michx. Fl. Bor. Amer.* 2. p. 224.; Bigelòvia porulòsa *Smith* in *Rees's Cyclop. Addenda*; ? B. ovàta *Lodd. Cat.* ed. 1836.
*The Sexes.* Uncertain which is in England.
*Engravings.* Our *fig.* 1390. from a specimen in the British Museum, and *fig.* 1391. from a specimen in Sir W. J. Hooker's herbarium.

1390. B. (*L.*) porulòsa.

*Spec. Char., &c.* Leaves coriaceous, sessile, lanceolately ovate, but with a blunt point, entire; the lateral edges revolute; under surface rather rusty, and punctured with little holes. (*Michx.*) A shrub, like the preceding kinds. Georgia and Florida. Introduced in 1806.

The plants in the collection of Messrs. Loddiges differ from B. *ligústrina* chiefly in the leaves being shorter.

[1391. B. (*L.*) porulòsa.

## ORDER LXVI. *ULMA'CEÆ.*

*ORD. CHAR. Flowers* pedicellate, hermaphrodite or polygamous, collected into loose small heads. *Perianth* free, 5-lobed. *Stamens* 5, opposite the lobes. *Ovarium* solitary. *Stigmas* 2. *Fruit* indehiscent, 2-celled, membranous, compressed, winged. *Seed* solitary in the cells, pendulous. *Albumen* none. (*G Don.*)

*Leaves* simple, alternate, stipulate, deciduous; serrated or entire. *Flowers* axillary, on short peduncles, small.—Trees, deciduous, chiefly of large size; natives of Europe, Asia, and America; included in three genera, which are thus contradistinguished:—

U'LMUS *L.* Flowers polygamous. Fruit a samara.
PLA'NERA Gmelin. Flowers polygamous. Fruit dry.
CE'LTIS *Tourn.* Flowers polygamous. Fruit a drupe.

## GENUS I.

### U'LMUS *L.* THE ELM. *Lin. Syst.* Pentándria Digýnia.

*Identification.* Lin. Gen., 123.; Sm. Engl. Fl., 2. p. 1, 2. and 19.
*Synonymes.* Orme, *Fr.*; Ulm, or Rüster, *Ger.*; Olmo, *Ital.*
*Derivation.* U'lmus is supposed to be derived from the Saxon word *elm*, or *ulm*; a name which is applied, with very slight alterations, to this tree, in all the dialects of the Celtic tongue. Ulm is still one of the German names for the elm; and the city of Ulm is said to derive its name from the great number of elm trees that are growing near it. There are above forty places in England mentioned in the *Doomsday-Book*, which take their names from that of the elm; such as Barn Elms, Nine Elms, &c.

*Gen. Char., &c.* *Flowers* in lateral groups, proceeding from peculiar buds, and protruded before the leaves; bisexual; monœcious. *Calyx* reddish, distinct from the ovary, top-shaped or bell-shaped, of one piece, but having 5 or 4—8 segments, which imbricate in æstivation; remaining until the fruit falls. *Stamens* as many as the segments. *Style* short or wanting. *Stigmas* 2, acuminate. *Fruit* a samara, with a membranous wing. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; serrate, feather-nerved, harsh to the touch, generally unequal at the base. *Flowers* small, whitish or reddish. Decaying leaves rich yellow. — Trees, deciduous; natives of Europe, Asia, and North America. The species are propagated by seeds, and the varieties by grafting.

The elm is remarkable for the aptitude of the different species to vary from seed; so much so that it is extremely difficult to say, in this genus, which are species and which are varieties; or even to what species the varieties belong. To us it appears, that there are only two British sorts which are truly distinct; viz. *U.* campéstris and *U.* montàna. *U.* americàna, and, perhaps, some other of the American species may also be distinct. Great attention has been paid to this genus by Mr. Masters of Canterbury, who has raised many sorts, both from American and European seeds, and whose collection will be found described in the 1st edition of this work, and in the *Gard. Mag.* vol. xiii. p. 28. *U.* glàbra and *U.* màjor seem intermediate between *U.* campéstris and *U.* montàna. *U.* effùsa appears very distinct; but is probably only a variety of *U.* campéstris. Of all the numerous varieties which may be procured in British nurseries, the best kinds for cultivation for their timber appear to be, the Huntingdon elm (*U.* m. glàbra vegèta), and the Wych elm (*U.* montàna); and for ornament the weeping elm (*U.* montàna péndula), the sub-evergreen elm (*U.* campéstris vìrens), and the twiggy elm (*U.* campéstris viminàlis). The sucker-bearing elms are chiefly the varieties of *U.* campéstris, and these seldom produce seeds; but *U.* montàna, and *U.* m. glàbra, and their varieties, which never throw up suckers, produce seeds in the greatest abundance every year. *U.* campéstris does indeed produce seeds occasionally, though rarely, in England; and the *U.* c. viminàlis is a British seedling, raised by Mr. Masters. In France, *U.* campéstris ripens seeds much more freely, and these have given rise, in that country, to innumerable varieties. The whole genus, it will readily be conceived, is in a state of great confusion. See *Arb. Brit.*, 1st edit., p. 1409.

1. *U.* CAMPE'STRIS *L.* The *English*, field, *or common small-leaved*, Elm.

*Identification.* Lin. Sp. Pl., 327.; Sm. Engl. Fl., 2. p. 20.
*Synonymes.* U'lmus Atínia *Pliny Nat. Hist.* lib. 16. cap. 17. and lib. 17. cap. 11.; *U.* minor, folio angusto scabro, *Ger. Emac.* 1480. f.; Olmo pyramidale, *Ital.*
*Engravings.* Engl. Bot., t. 1886.; N. Du Ham., 2. t. 42.; the plates in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1394.

*Spec. Char., &c.* Leaves doubly serrated, rough. Flowers nearly sessile, 4-cleft. Samara oblong, deeply cloven, glabrous. (*Smith.*) A large deciduous tree. England, France, and the warmer parts of Europe. Height 60 ft. to 80 ft. Flowers brownish; March and April. Samara yellow; ripe in May.

*Varieties.*

A. *Timber Trees.*

♈ U. *c.* 1 *vulgàris.* *U.* campéstris *Hort. Dur.* — Very twiggy; pale smooth bark; of irregular growth in some plants, with almost horizontal branches, where no others are near to force the shoots upwards. In some soils, it is very subject to decay at the joints. The bark is leaden-coloured while young, splitting into long thin strips with age. A bad variety to cultivate for timber.

♈ U. *c.* 2 *latifòlia* Hort. — Leaves broader than in the species, and expanding very early in spring.

♈ U. *c.* 3 *àlba* Masters. — Of upright growth. The old bark cracks in irregular long pieces, and becomes very pale with age. Shoots with the bark tinged with red, and the footstalks of the leaves quite red. Leaves shining, and doubly and deeply serrated, bearing a very near resemblance to those of *U.* effùsa. A valuable timber tree.

♈ U. *c.* 4 *acutifòlia* Masters. — Growth, during its early stages, very like the last, but stronger. The leaves, in old specimens, more tapering, and the branches more pendulous. Bark like the last. This appears very common in some parts of Essex, Suffolk, and Norfolk. Also a good timber tree.

♈ U. *c.* 5 *stricta* Hort. Dur. Red English Elm. — One of the most valuable timber trees of the small-leaved kinds. Growth very rigid. The timber is excellent; and the tree forms poles of equal diameter throughout.

♈ U. *c.* 6 *vìrens* Hort. Dur. Kidbrook Elm. — Almost evergreen in a mild winter: and, as such, is the most ornamental tree of the genus. It must not, however, be depended upon as a timber tree, because, in some autumns, the frost kills the shoots. The bark is red, and the tree of spreading habit. This, like the last-mentioned kind, grows well upon chalk.

♈ U. *c.* 7 *cornubiénsis* Hort. *U.* stricta *Lindl. Synop.* p. 227., *Lodd. Cat.* ed. 1836; the Cornish Elm. — An upright-branched tree; the trunk and branches, when young, having a somewhat flexuose appearance, which disappears as it grows old. The leaves are small, strongly veined, and coriaceous. Branches bright brown, smooth when young, and very compact. This variety, in the climate of London, is a week or fortnight later in coming into leaf than the common elm, from which, and from all the other varieties, it is readily distinguished by the bark of old trees, which never scales off, but tears as under, exhibiting its fibrous construction, in the manner of the bark of the sweet chestnut. There are many fine trees of this variety in Kensington Gardens.

♈ U. *c.* 8 *sarniénsis.* *U.* sarniénsis *Lodd. Cat.* 1836; the Jersey Elm.— A free-growing variety, differing very little from the species.

♈ U. *c.* 9 *tortuòsa.* *U.* tortuòsa *Lodd. Cat.* 1836; ? Orme tortillard, *Fr.*; the twisted Elm.—The wood of the tortuous parts of the trunk is valuable for the naves of wheels, and is much used for that purpose in France. It is the only elm which grows freely by cuttings, and is generally so propagated in the French nurseries. See *Arb. Brit.*, 1st edit., p. 1379.

B. *Ornamental or curious Trees.*

♈ U. *c.* 10 *fòliis variegàtis* Lodd. Cat. ed. 1836. — This variety, which

may be called the silver-leaved elm, has the leaves striped with white, and, in spring, is very ornamental.

U. *c.* 11 *betulæfòlia*. *U. b*etulæfòlia *Lodd. Cat.* ed. 1836. — Leaves somewhat resembling those of the common birch.

U. *c.* 12 *viminàlis* Hort. Dur. p. 66. *U.* viminàlis *Lodd. Cat.* ed. 1836. (The plate in *Arb. Brit.*, 1st edit., vol. vii.) — Small leaves, and numerous slender twig-like branches. It is a very distinct and elegant variety; and easily recognised, either in summer or winter Raised, in 1817, by Mr. Masters.

U. *c.* 13 *parvifòlia*. *U.* parvifòlia *Jac. Pl. Rar. Hort. Schœnbr.* iii. p. 261. t. 262.; *U.* microphýlla *Pers.*; *U.* pùmila var. β (transbaïcalénsis) *Pall. Ross.* i. p. 76. t. 48.; *U.* pùmila *Willd. Sp. Pl.* i. p. 1326.; *U.* p. fòliis párvis, &c. *Pluk. Alm.* p. 293.; *U.* hùmilis *Enum. Stirp. Ruth.* p. 180. No. 260. (Our *fig.* 1392.) — A tree, according to Pallas, who mentions several varieties of it, very common in all the woods of the South of Russia, and varying in height from that of a middle-sized tree to that of a diminutive shrub, according to the soil and climate in which it grows.

1392. *U. c.* parvifòlia.

U. *c.* 14 *planifòlia*. *U.* planifòlia *Hort.* (The plate of this tree in *Arb. Brit.*, 1st edit., vol. vii.) — A handsome small tree, closely resembling the preceding variety.

U. *c.* 15 *chinénsis*. *U.* chinénsis *Pers.* i. p. 291. No. 9., *Rœm. et Schult. Syst. Veg.* vi. p. 303.; Thé de l'Abbé Gallois, Orme nain, *Fr.*; (Our *fig.* 1393.) — A low bush, introduced from China, but when is uncertain. Rather tender. Horticultural Society's Garden.

U. *c.* 16 *cucullàta* Hort. — Leaves curiously curved, something like a hood. Hort. Soc. Garden.

U. *c.* 17 *concavæfòlia* Hort. — Resembles the preceding kind. Hort. Soc. Garden.

U. *c.* 18 *fòliis aúreis* Hort.—Leaves variegated with yellow.

U. *c.* 19 *nàna* Hort.—A very distinct variety, said not to grow above 2 ft. high in ten or twelve years. Hort. Society's Garden.

1393. *U. c.* chinénsis.

*Other Varieties.* In Messrs. Loddiges's *Catalogue*, ed. 1836, U. *c. fòliis maculàtis*, U. *dùbia*, U. *viscòsa*, and some others, are enumerated, and in our first edition twelve French varieties are described, to which might be added, the Orme pedunculé of the French, which appears to be our *U*lmus effùsa, though we have doubts on this subject.

The common English elm is, perhaps, more frequently to be found in the parks and pleasure-grounds of the English nobility and gentry, than any other tree, except the oak. It is of a tall upright habit of growth, with a straight trunk, 4 or 5 feet in diameter when fully grown, and attaining the height of 60 or 70 feet or upwards. The wood loses a great deal in drying: weighing, when green, nearly 70 lb. the cubic foot; and, when dry, not more than 48½ lb. It is of a brownish colour, and is hard and fine-grained. It possesses greater lateral adhesion, and less longitudinal toughness, than that of *U.* montàna, and, consequently, does not crack so much as that sort in drying. In ship-building it is valuable for forming the blocks and dead eyes, and other wooden furniture of rigging, being particularly suitable for these purposes, from its hard and adhesive nature, and indisposition to crack or split when

exposed to sun or weather. The great use of the English elm, however, in ship-building, is for keels. In light land, especially if it be rich, the growth of the tree is very rapid; but its wood is light, porous, and of little value compared with that grown upon strong land, which is of a closer stronger texture, and at the heart will have the colour, and almost the hardness and heaviness, of iron. The common elm produces abundance of suckers from the roots, both near and at a great distance from the stem; and throughout Europe these afford the most ready mode of propagation, and that which appears to have been most generally adopted till the establishment of regular commercial nurseries; the suckers being procured from the roots of grown up trees, in hedgerows, parks, or plantations. In Britain, the present mode of propagation is by layers from stools, or by grafting on the *U.* montàna. The layers are made in autumn, or in the course of the winter, and are rooted, or fit to be taken off, in a year. Grafting is generally performed in the whip or splice manner, close to the root, in the spring; and the plants make shoots of 3 or 4 feet in length the same year. Budding is sometimes performed, but less frequently. The great advantage of grafting is, that the plants never throw up suckers, unless indeed the graft is buried in the soil. The tree bears the knife better than most others, and is not very injurious to grass growing under it. The leaves are eaten by most kinds of cattle.

1394. *U.* campéstris.

♃ 2. *U.* (c.) SUBERO'SA *Mœnch.* The Cork-*barked* Elm.

*Identification.* Ehr. Arb., 142.; Willd. Sp. Pl., p. 1324.; Engl. Fl., 2. p 21.
*Synonymes.* *U.* campéstris *Woodv. Med. Bot.* t. 197.; *U.* campestris and Theophrásti Du Ham. Arb. 2. p. 367. t. 108.; *U.* vulgatissima fòlio làto scàbra *Ger. Emac.* 1480. f.; *U.* montàna *Cam. Epit.* t. 70., upper fig.; common Elm Tree, *Hunt. Evel. Syl.* p. 119.; l'Orme Liège, l'Orme fungeux, *Fr.*
*Engravings.* Eng. Bot., t. 2161.; Du Ham. Arb., 2. t. 108.; the plate in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1395.

*Spec. Char., &c.* Leaves pointed, rough, doubly and sharply serrated. Flowers stalked, 4—5-cleft. Samara almost orbicular, deeply cloven, glabrous. Branches spreading; their bark corky. (*Smith.*) A deciduous tree, taller and more spreading than the common English elm, England. Height 60 ft. to 80 ft., and sometimes 100 ft. Flowers and samara as in the preceding kind.

1395. *U.* (c.) suberòsa.

*Varieties.*

♃ U. (*c.*) *s.* 1 *vulgàris.* *U.* suberòsa *Hort. Dur.*; the Dutch cork-barked Elm.—This, except the American elm and the Canterbury seedling (*U.* montàna màjor glàbra), is the quickest-growing of any that Mr. Masters cultivates. It is, moreover, valuable on account of its growing well upon the Kentish chalks; and it keeps its leaf till late in the autumn. It is a tree of large growth. Many of the elms at Windsor are of this kind.

♃ U. (*c.*) *s.* 2 *fòliis variegàtis* Lodd. Cat. ed. 1836. *U.* suberòsa variegàta *Hort. Dur.* — Precisely like the last, except in its variegation.

♃ U. (*c.*) *s.* 3 *álba.* *U.* suberòsa álba *Masters.*— A low tree, of more

compact growth than the two preceding varieties; and often growing into an oval, or, rather, cone-shaped head. Young shoots pubescent. Foliage thickly set. Bark much wrinkled, and becoming white with age.

* U. (*c.*) *s.* 4 *erécta* Lodd. Cat. ed. 1836. — Has a tall narrow head, resembling that of the Cornish elm; but differs from that tree in having much broader leaves, and a corky bark.

♱ U. (*c.*) *s.* 5 *var.* The broad-leaved Hertfordshire Elm, *Wood*, nurseryman at Huntingdon. — The shoots show some tendency to become corky, which, in our opinion, determines this variety to belong to *U.* (*c.*) suberósa, rather than to *U.* montàna or *U.* (m.) glàbra.

♱ U. (*c.*) *s.* 6 *var.* The narrow-leaved Hertfordshire Elm, *Wood.* — Leaves and shoots differing very little from those of *U.* campéstris.

♱ 3. *U.* (c.) MA'JOR *Smith.* The greater, *or Dutch Cork-barked*, Elm.

*Identification.* Sm. Engl. Bot., t. 2542.; Sm. Engl. Fl., 2. p. 21.
*Synonymes.* *U.* hollándica *Mill. Dict.* ed. 8. No. 5.; *U.* màjor hollándica, &c., *Pluk. Alm.* 393.; *U.* màjor, amplióre fòlio, &c., *Du Ham. Arb.* 2. p. 368.; Tilia más *Matth. Valgr.* 1. 158. f.; *U.* latifòlia *Michx. N. Amer. Syl.* 3. t. 129. f. 2.
*Engravings.* Engl. Bot., t. 2542.; N. Amer. Syl., 3. t. 129. f. 2.; the plate of this tree in Arb. Brit., 1st edit,. vol. vii.; and our *fig.* 1396.

*Spec. Char., &c.* Leaves rough, unequally and rather bluntly serrated. Flowers nearly sessile, 4-cleft. Samara obovate, slightly cloven, glabrous. Branches drooping, the bark corky. (*Smith.*) A deciduous tree, with widely spreading branches. England. Height 50 ft. to 70 ft. Flowers and samara as in the preceding kinds

1396. *U.* (c.) màjor.

The branches spread widely, in a drooping manner, and their bark is rugged, and much more corky than even the foregoing. Leaves on short thick stalks, larger and more bluntly serrated than the last; rough on both sides, especially beneath; but the hairy tufts at the origin of each transverse rib are very small. Segments of the calyx short and rounded. Stamens 4. Samara obovate, with a very small rounded sinus, not reaching half so far as the seed. This appears to be the kind brought over by William III. from Holland; which, from its quick growth, was, at first, much used for hedges and formal rows of clipped trees; but, when the Dutch taste in gardening declined, the tree was no longer cultivated; as its wood was found very inferior to that of most other kinds of elm.

♱ 4. *U.* EFFU'SA *Willd.* The spreading-*branched* Elm.

*Identification.* Willd. Arb., 393.; Sp. Pl., 1. p. 1325.; Duby et Dec. Bot. Gall., 1. p. 422.
*Synonymes.* *U.* ciliàta *Ehrh. Arb.* 72.; *U.* pedunculàta *Lam. Dict.* No. 2.; *U.* octándra *Schk. Bot Handb.* 178. t. 67.; *U.* fòlio latíssimo, &c., *Buxb. Hal.* 340.; *U.* læ'vis *Pal. Ross.* vol. 1. p. 75.; l'Orme pédonculé, *Fr.*
*Engravings.* Hayne, t. 29.; the plates of this tree in Arb. Brit., 1st edit., vol vii.; and our *fig.* 1397.

*Spec. Char., &c.* Leaves mostly resembling those of the *U.* montàna, but quite smooth on the upper side; unequal at the base, doubly serrated, Flowers on drooping stalks. Stamens in a flower 6—8. Samara elliptic, deeply cloven, strongly fringed with coarse dense hairs. (*Smith.*) A deciduous tree with ascending shoots, which spread at the extremities. Europe, chiefly in the South of France, and in the Caucasus. Height 50 ft. to 60 ft. Introd.? 1800. Flowers and samara as in the preceding kinds.

This species is very distinct, even when the tree is bare of leaves, as will be seen by comparing the winter tree of it in *Arb. Brit.*, 1st edit., vol. vii.

with that of *U.* montàna màjor depicted at the same season. In spring and summer, it is equally marked by the long drooping peduncles of its flowers, and its hairy samaras. Its leaves are large, and of a beautiful light shining green tinged with red, and with red veins. The buds are long, sharply pointed, and greenish; while in the *U.* campéstris they are short, obtuse, and covered with greyish hairs. As a tree of ornament, it is well worth cultivating for the beauty of its leaves, for the distinct character of its spray in winter, and, indeed, for its general appearance at all seasons. Propagated by grafting on *U.* montàna. The largest tree of this species in England is at White Knights, in front of the mansion.

1397. *U.* effùsa.

♆ 5. *U.* MONTA`NA *Bauh.* The Mountain, *Scotch, or Wych,* Elm.

*Identification.* Bauh. Pin., 427.; Sm. Engl. Bot., t. 1827.
*Synonymes.* *U.* glàbra *Huds.* ed. 1. 95.; *U.* effùsa *Sibth.* 87.; *U.* scàbra *Mill. Dict.* No 2.; *U.* nùda *Ehrh.*; *U.* campéstre *Willd. Sp. Pl.* p. 1324.; *U.* campéstris latifòlia *Hort. Par.*; Wych Hazel of old authors.
*Engravings.* Engl. Bot., t. 1887.; Fl. Dan., t. 632.; the plates of some of the varieties in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1399.

*Spec. Char., &c.* Leaves pointed, rough, broad, and doubly serrated. Flowers on longish peduncles loosely tufted, 5—6-cleft. Samara somewhat orbicular, slightly cloven, naked. Branches drooping at their extremities; their bark smooth and even. (*Smith.*) A spreading deciduous tree, with smooth bark. Britain, and various parts of Europe. Height 50 ft. to 60 ft. Flowers reddish; April and May. Samara brown; ripe in June.

*Varieties.* The varieties of the Scotch elm are extremely distinct, and very handsome trees, some well worth cultivating in a useful, and others in an ornamental, point of view.

A. *Timber Trees.*

♆ U. *m.* 1 *vulgàris.*—Tree spreading; seldom exceeding 40 or 50 feet in height, except when drawn up by other trees.

♆ U. *m.* 2 *rugòsa* Masters. *U.* rugòsa *Lodd. Cat.* ed. 1836.—Bark reddish brown, cracking into short regular pieces, very like that of *A*cer campéstre. Tree of spreading growth, and moderate size.

♆ U. *m.* 3 *màjor* Masters. (Plate in *Arb. Brit.* 1st edit. vol. vii.)—The tree is of upright and rapid growth, with few branches; and, in some stages, approaching the habit of the common Scotch elm, but of a more tapering form. The leaves fall almost a month sooner than those of the following sort.

♆ U. *m.* 4 *mìnor* Masters.—Compared with *U.* m. màjor, is of a more branching and spreading habit, of lower growth, with more twiggy shoots; and these are more densely clothed with leaves, which are retained long in the autumn.

♆ U. *m.* 5 *cebeménsis* Hort. The Cevennes Elm.—Habit spreading, like that of *U.* m. vulgàris; but it appears of much less vigorous growth. Horticultural Society's Garden.

U. *m.* 6 *nìgra.* *U.* nìgra *Lodd. Cat.*; the black Irish Elm.—A spreading tree, with the habit of *U.* montàna vulgàris, but with much smaller leaves. It is by some considered as a variety of *U.* campéstris; but, as it ripens seeds in Ireland, we are inclined to think it belongs to what may be called the seed-bearing section of the genus, and, consequently, to *U.* montàna.

♆ U. *m.* 7 *austràlis* Hort.—Leaves rather smaller, and habit of growth more pendulous than the species.

B. *Ornamental or curious Varieties.*

♈ U. *m.* 8 *péndula.* *U.* péndula *Lodd. Cat.* ed. 1836; *U.* glàbra decúmbens *Hort. Dur.*; *U.* horizontàlis *Hort.*; *U.* rùbra in the Horticultural Society's Garden, in 1835. (Plate of this tree in *Arb. Brit.*,

1398. *U.* m. péndula.

1st edit., vol. vii., and our *fig.* 1398.)—This is a beautiful and highly characteristic tree, generally growing to one side, spreading its branches in a fan-like manner, and stretching them out sometimes horizontally, and at other times almost perpendicularly downwards, so that the head of the tree exhibits great variety of shape.

♈ U. *m.* 9 *fastigiàta* Hort. *U.* glàbra replicàta *Hort. Dur.*; *U.* Fórdii Hort.; *U.* exoniénsis Hort.; the Exeter Elm, Ford's Elm. (Plate in *Arb. Brit.*, 1st edit., vol. vii.) — A very remarkable variety, with peculiarly twisted leaves, and a very fastigiate habit of growth. The leaves, which are very harsh, feather-nerved, and retain their deep green till they fall off, enfold one side of the shoots.

♈ U. *m.* 10 *críspa.* ? *U.* críspa *Willd.*; the curled-leaved Elm. — Of a slender and stunted habit of growth. Horticultural Society's Garden.

*Other Varieties.* Several might be taken from catalogues, both timber trees and curious plants; but the former, such as *U.* montàna végeta *Lindl.*, we think may be best classed under *U.* m. glàbra, and the latter are of so little merit, that we hardly think them worth recording in this work. A variety or variation was discovered in a wood near Verrières, in which the soft wood, or cambium, of the current year's shoots appears of a deep red when the bark is removed. It retains this peculiarity when propagated by extension; and there are plants of it in the Jardin des Plantes at Paris. A similar variation occurs in *Mòrus* itálica. (See p. 708.)

The Scotch elm has not so upright a trunk as the English elm; and it soon divides into long, widely spreading, somewhat drooping branches, forming a large spreading tree. In Scotland, where the tree abounds, both naturally and in artificial plantations, the wood weighs less than that of the English elm, and is more coarse-grained. Nevertheless, Sang observes, it is always prized next to the wood of the oak It is used, he adds, by the ship-builder, the

boat-builder, the block and pump maker, the cartwright, the cabinet-maker and the coach-maker. The timber, Matthews observes, has much sap-wood, and great longitudinal toughness ; but, from the great quantity of sap-wood, and want of lateral adhesion, it splits considerably when dry. The tree has a peculiar fan-like spread of the branches, often tending to one side, and most perceptible in young trees. Hence, when grown up, there is generally a slight bending in the stem, which renders it very fitting for floor-timbers of vessels ; the only part of a ship, except the bottom plank, to which it is applicable, as it soon decays above water. Its great toughness and strength, however, render it fit for floors. The soil in which this elm most luxuriates is a deep rich loam ; but that in which it becomes most valuable, is a sandy loam lying on rubble stone, or on dry rock. In wet tilly clays, it soon sickens. It does not produce suckers like the English elm ; but, according to Boutcher, it roots more readily from layers than that species. The most ready mode of propagating it, however, is by seeds, which are produced in great abundance, and are ripe about the middle of June. They ought to be gathered with the hand before they drop, as, from their lightness and winged appendages, they are very apt to be blown away by the wind. The seeds may either be sown as soon as gathered, in which case, many plants will come up the same season ; or they may be thinly spread out to dry in the shade, and afterwards put up into bags or boxes, and kept in a dry place till the following March or April.

1399. *U.* montàna.

### ☿ 6. *U.* (M.) GLA`BRA *Mill.* The smooth-*leaved, or Wych*, Elm.

*Identification.* Mill. Dict , ed. 8., No. 4. ; Sm. Engl. Fl., 2. p. 23.
*Synonymes.* *U.* montàna β *Fl. Br.* 282. ; *U.* fòlio glàbro *Ger. Emac.* 1481. f. ; *U.* campéstris var. 3. *With.* 279. ; the feathered Elm.
*Engravings.* Engl. Bot., t. 2248. ; and our *fig.* 1400.

*Spec. Char., &c* Leaves elliptic-oblong, doubly serrated, smooth. Flowers nearly sessile, 5-cleft. Samara obovate, naked, deeply cloven. (*Smith.*) Branches spreading, rather drooping, smooth, blackish, scarcely downy in their earliest stage of growth. Leaves smaller than any of the preceding (except *U.* campéstris), as well as more oblong ; strongly serrated, very unequal at the base, not elongated at the extremity ; their substance firm, or rather rigid ; the surface of both sides very smooth to the touch, and without any hairs beneath, except the axillary pubescence of the ribs, which often forms a narrow downy line along the midrib. Flowers nearly sessile, with 5 short, bluntish, fringed segments, and as many longish stamens, the anthers of which are roundish heart-shaped. Samara smaller than most other species, obovate, cloven down to the seed, smooth, often reddish. A tall, elegant, deciduous tree. Britain, chiefly in England, in woods and hedges ; and forming the most common elm in some parts of Essex. Height 60 ft. to 80 ft. Flowers and samara as in the preceding sort.

1400. *U.* (m.) glàbra.

It bears seeds in nearly as great abundance as *U.* montàna, and it does not

throw up suckers; which convinces us that it is only a variety of that species. The propagation, culture, &c., of *U.* glàbra and its varieties are the same as in the preceding sort; but, to preserve the latter distinct, they ought to be grafted.

*Varieties.* In consequence of *U.* glàbra ripening seeds in different parts of England, many varieties have been raised from it, most of which are distinguished by great rapidity of growth. It is difficult to determine, in every case, whether the varieties of *U.* (m.) glàbra are not nearer to *U.* montàna, than to that sub-species; and, in some instances, they appear to partake of the character of *U.* campéstris and *U.* (c.) suberòsa. T. A. Knight, Esq., informs us that from seeds of one variety of *U.* (m.) glàbra, viz. the Downton elm, which were ripened in the cold climate of that part of Shropshire, he "raised plants which are so perfectly similar to the *U.* suberòsa, and which approximate so nearly to the character of the *U.* glàbra, that" he does "not doubt but that the *U.* campéstris, *U.* suberòsa, *U.* glàbra, and three or four other varieties which" he has "seen in different parts of England, are all varieties only of the same species."

A. *Timber Trees.*

♆ U. (*m.*) *g.* 1 *vulgàris.* The common smooth-leaved Elm.

♆ U. (*m.*) *g.* 2 *végeta.* *U.* montàna végeta in the Horticultural Society's Garden; *U.* americàna *Masters*; the Huntingdon Elm, the Chichester Elm, the American Elm in some places, and perhaps the Scampston Elm. — This is by far the most vigorous-growing kind of elm propagated in British nurseries, often making shoots from 6 ft. to 10 ft. in length in one season; and the tree attaining the height of upwards of 30 ft. in ten years from the graft. Raised at Huntingdon about 1746, from seed collected in that neighbourhood, by Mr. Wood, nurseryman there.

♆ U. (*m.*) *g.* 3 *var.* The Scampston Elm. — Variety of *U.* glàbra, and very little different from the preceding kind.

♆ U. (*m.*) *g.* 4 *màjor.* *U.* glàbra màjor *Hort. Dur.*; the Canterbury Seedling. — Of more vigorous growth than the species, and, indeed, a rival to the Huntingdon elm in quickness of growth. Judging from the specimens of this variety sent to us by Mr. Masters, we should say that it belongs fully as much to *U.* montàna as to *U.* (m.) glàbra.

♆ U. (*m.*) *g.* 5 *glandulòsa* Lindl. — Leaves very glandular beneath.

♆ U. (*m.*) *g.* 6 *latifòlia* Lindl. — Leaves oblong, acute, very broad.

♆ U. (*m.*) *g.* 7 *microphýlla* Hort. *U.* g. parvifòlia. — Leaves small. Horticultural Society's Garden.

B. *Ornamental or curious Trees.*

♆ U. (*m.*) *g.* 8 *péndula.* *U.* campéstris péndula *Hort. Dur.*; the Downton Elm. — Raised in Smith's Nursery, at Worcester, in 1810, from seeds obtained from a tree in Nottinghamshire. Mr. Knight of Downton Castle purchased some of these trees; and one them turned out to be that weeping variety which has since obtained the name of the Downton elm.

♆ U. (*m.*) *g.* 9 *variegàta* Hort. — Leaves variegated. Hort. Soc. Garden.

♆ U. (*m.*) *g.* 10 *ramulòsa* Booth. — Branches more twiggy than the species.

♆ 7. *U.* A'LBA *Kit.* The whitish-*leaved* Elm.

*Identification.* Kitaib., quoted in Rœm. et Schult. Syst. Veg., 6. p. 300.; Willd. Baumz., p. 518.
*Engraving.* Our *fig.* 0000. in p. 0000.

*Spec. Char., &c.* Bark grey brown; smooth, not chinky. Leaves with downy petioles; and disks oblong, acuminate, 2½ in. long, unequal at the base, doubly and very argutely serrate; above, deep green; beneath, downy, and becoming obviously whitish. (*Willd.*) A large deciduous tree. Hungary; said to have been introduced in 1834, but we are not aware that the plant is in British gardens.

### ☨ 8. *U.* AMERICA'NA *L.* The American Elm.

*Identification.* Lin. Sp. Pl., 327.; Pursh Sept., 1. p. 199.
*Synonymes.* The white Elm, *Amer.*; the Canadian Elm, the American white Elm.
*Engravings.* Michx. North Amer. Sylva, 3. t. 126.; and our *fig.* 1401.

*Spec. Char., &c.* Leaf with the petiole 1 in. to 1½ in. long, and hairy with short hairs; and the disk unequal at the base, 4 in. to 5 in. long, inclusive of a long acuminate point, 2 in. to 2½ in. broad, serrate, and mostly doubly so; the axils of the veins underneath joined by a membrane. Flowers peduncled, effuse, purple; peduncles short, glabrous. Stamens 5 and 8. Samara fringed at the edge with hairs, ovate, acute. This species is readily distinguishable from others by the membrane which appears at the axils of the veins. (*Willd.*) Young branches brown, with short very fine hairs. Leaves deeply green above, almost glossy, rough; beneath, pale, downy. Flowers like those of *U.* effùsa. A large tree. New England to Carolina. Height 80 ft. to 100 ft. Introduced in 1752; but rarely flowering, and never ripening seeds in England.

1401. *U.* americàna.

*Varieties.*

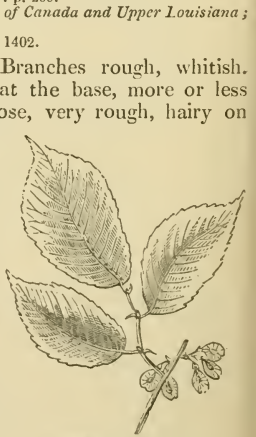
- ☨ U. *a.* 1 *rùbra* Ait. Hort. Kew. i. p. 319. — Branches red. Leaves ovate, rugose, rough.
- ☨ U. *a.* 2 *álba* Ait. Hort. Kew. i. p. 319., Marsh, p. 250. ? *U.* mollifòlia (*Rœm. et Schult.*) — Branches whitish. Leaves oblong, rough.
- ☨ U. *a.* 3 *péndula* Pursh Sept. i. p. 200., Ait. Hort. Kew. i. p. 319. — Branches pendulous.
- ☨ U. *a.* 4 *incìsa* Hort. (Plate in *Arb. Brit.*, 1st edit., vol. vii.) — This variety differs from the other varieties, in having the leaves somewhat more deeply serrated, and rather smaller, approaching nearer to those of *U.* effùsa. Horticultural Society's Garden.
- ☨ U. *a.* 5 *fòliis variegàtis* Hort.—Leaves variegated. Hort. Soc. Garden.

The white elm delights in low humid situations. The wood is used for the same purposes as that of the European elm, but it is decidedly inferior in strength and hardness; it has also less compactness, and splits more readily. Propagated by grafting on *U.* montàna, but not common in collections.

### ☨ 9. *U.* (A.) FU'LVA *Michx.* The tawny-*budded, or slippery,* Elm.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 172.; Pursh Sept., 1. p. 200.
*Synonymes.* *U.* rùbra *Michx. Arb.* 3. p. 278.; Orme gras, *French of Canada and Upper Louisiana*; red Elm, red-wooded Elm, Moose Elm.
*Engravings.* Michx. North Amer. Sylva, 3. t. 128.; and our *fig.* 1402.

*Spec. Char., &c.* Resembles the Dutch elm. Branches rough, whitish. Leaves ovate-oblong, acuminate, nearly equal at the base, more or less cordate there; serrate with unequal teeth, rugose, very rough, hairy on both surfaces: they are larger, thicker, and rougher than those of *U.* americàna. Leaf buds tomentose, with a tawny dense tomentum: they are larger and rounder than those of *U.* americàna. Scales of the buds that include the flowers downy. Peduncles of flowers short. Samara not fringed, very like that of *U.* campéstris; orbicular, or obovate. (*Michx.*) Leaves variable in shape and serratures, but more downy than the other North American elms. Stamens 5—7. Stigmas purplish. Samara, when young, downy on both sides. A tree bearing a strong resemblance to the Dutch elm. Canada to Carolina. Height 50 ft. to 60 ft. Introduced ? 1815. Flowers and samara as in preceding species.


1402. *U.* (a.) fùlva.

Distinguished from the white American elm by its buds, which are larger and rounder; and which, a fortnight before their developement, are covered with a russet down. It is less abundant than the white American elm; and the two species are rarely found together, as the red elm requires a substantial soil, free from moisture, and even delights in elevated and open situations. The heart-wood is coarser-grained and less compact than that of *U.* americàna, and is of a dull red tinge; whence the name of red elm. There are small plants bearing the name of *U.* fúlva, in Loddiges's arboretum; but they are scarcely, if at all, distinguishable from *U.* americàna.

♀ 10. *U.* ALA'TA *Michx.* The *Wahoo*, *or Cork*-winged, Elm.

*Identification.* Michx. Fl. Bor. Amer., 1. p. 173.; Pursh Sept., 1. p. 200.
*Synonymes.* *U.* pùmila *Walt. Fl. Carol.* 111; Wahoo, *Indians of North America.*
*Engravings.* Michx. North Amer. Sylva, 3. t. 127.; and our *fig.* 1403.

*Spec. Char., &c.* Leaves like those of *C*árpinus *B*étulus *L.* Branches bearing two longitudinal corky wings. Leaves with short petioles, and disks that are oblong-oval, narrowed to an acute point, almost equal at the base, toothed. Samara downy, bearing a dense fringe of hairs at the edge. (*Michx.*) A middle-sized deciduous tree. Virginia, Carolina, and Georgia. Height 30 ft. to 40 ft. Introduced in 1820. Flowers and samara as in the preceding species.

The most remarkable part of this species is, a fungous appendage, two or three lines wide, attached to the branches throughout their whole length; from which the name of alàta (winged) has been given. The wood is fine-grained, more compact, heavier, and stronger than that of *U.* americàna. The heart-wood is of a dull chocolate colour, and always bears a great proportion to the sap-wood. There are small plants in Messrs. Loddiges's collection, which, from the leaves, might be taken for those of *U.* (c.) suberòsa; and the engraving in Michaux, from which *fig.* 1403. is reduced to our usual scale, closely resembles the young shoots and leaves of that tree of *U.* (c.) suberòsa in the Horticultural Society's Garden, of which a plate is given in *Arb. Brit.*, 1st edit., vol. vii.

1403. *U.* alàta.

## Genus II.

PLA'NER*A* Gmel. THE PLANERA. *Lin. Syst.* Polygàmia Monœ'cia; or Tetr-Pent-ándria Digýnia.

*Identification.* Gmel. Syst. Nat., 2. p. ?150.; Michx. North Amer. Sylva, 3. p. 100.
*Synonymes.* Rhámnus *Pall.*, *Güldenst.*; *U*lmus, various authors, as to the Plánera Richárdi.
*Derivation.* Named in honour of *Planer*, professor of botany at Erfurth, who published, in 1788, a work entitled *Index Plantarum Agri Erfordiensis*, in one volume 8vo.

*Gen. Char.* *Flowers* polygamous or monœcious. — *Female* and *bisexual flowers.* *Calyx* bell-shaped, distinct from the ovary, membranous, green, of one piece, but having 5-ciliate lobes. *Stamens* in the bisexual flower 4—5, less developed than those in the male flower. *Ovary* top-shaped, villous. *Stigmas* 2, sessile. *Fruit* roundish, pointed, dry.— *Male flower.* *Calyx* as in the female and bisexual flowers. *Stamens* 4—5. (*G. Don.*)

*Leaves* simple, alternate, stipulate or exstipulate, deciduous; toothed, feather-nerved. *Flowers* small, greenish. *Fruit* small, whitish when ripe. Decaying leaves yellowish green.— Trees, deciduous, natives of Asia and North America, with the aspect of the hornbeam, and readily uniting by grafting with that tree or the elm. Bark scaling off like that of the *P*látanus. Propagated by grafting on the elm, or by layers in any common soil.

### ✝ 1. P. Richa'rdi Michx. Richard's Planera, *or Zelkoua Tree.*

*Identification.* Michx. Fl. Bor. Amer., 2. p. 248.; Bieb. Fl. Taur. Cauc. Suppl., 1. p. 187.
*Synonymes.* P. crenàta *Michx. Mém. sur le Zelkoua*; P. carpinifòlia *Wats. Dend. Brit.* t. 106.; P. crenàta *Desf.*; Rhàmnus carpinifòlius *Pall. Fl. Ross.*; *R. ulmoïdes Güldenst. It.* 1. p. 313. and 427.; *Ulmus* crenàta *Hort. Par.*; *U.* parvifòlia *Willd. Baum.*; *U.* campéstris *Walt. Fl. Carol.* p. iii.; *U.* polýgama *Richard Act. Paris* 1781; *U.* nemoràlis *Ait. Hort. Kew.* ed. 2. p. 108.; *U.* foliis crenatis basi æqualibus, fructu ovoideo, non compresso, *Poiret Encyc. Méth.* iv. p. 611.; le Zelkoua, or Orme de Sibérie, *Fr.*; Richard's Planere, *Ger.*
*Engravings.* Pall. Fl. Ross., 1. t. 60.; Dend. Brit., t. 106.; the plates of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1404.

*Spec. Char., &c.* Flowers solitary in the axils of leaves; and both flowers and leaves borne on a shoot that is developed in the same year with themselves. Petiole of leaf not obvious; disk of leaf elliptical, unequal at the base, dentate. (*N. Du Ham.*) A large deciduous tree. West of Asia, and upon the shores of the Caspian Sea; and to Imiretta and Georgia, on the south of Mount Caucasus. Height 50 ft. to 70 ft. Introduced in 1760. Flowers greenish white; April and May. Fruit white; ripe in October.

The base of the trunk does not swell out, like that of most other trees, its thickness being very little greater at the surface of the ground than it is at the point of ramification. Like that of the hornbeam, it is marked with longitudinal furrows, like open gutters. The head is large, tufted, and very much branched; but the branches, though widely extended, are more slender, and more vertical in their direction, than is generally the case with forest trees. The bark of the trunk is not grey and cracked, like that of the elm or the oak, but resembles rather that of the hornbeam or beech. In British gardens, the rate of growth of this tree is similar to that of the beech or common hornbeam; it attaining the height of 20 ft. in 10 years. The wood, when cut obliquely, resembles that of the robinia, and presents, like it, numerous interlacements of fibres. It is very heavy, and, when dry, becomes so extremely hard, that it is difficult to drive nails into it with a hammer. In the countries where it is abundant, it is employed for the same purposes as oak; and it is found to be even superior to that wood for furniture. Its colour is agreeable; it is finely veined; and its texture is so compact, and its grain so fine, as to render it susceptible of the highest polish.

1404. P. Richardi.

### ✝ 2. P. Gme'lini Michx. Gmelin's Planera.

*Identification.* Michx. Fl. Bor. Amer., 2. p. 248.; Desf. Hist. des Arbres et Arbriss., 2. p. 446.
*Synonymes.* P. ulmifòlia *Michx. Arb. Amer.* 3. p. 283. t. 7.; P. aquática *Willd. Sp. Pl.* 4. p. 967.; Anonymus aquaticus arbor, &c. *Walt. Carol.* 230.
*Engravings.* Michx. Arb. Amer., t. 7.; North Amer. Sylva, 3. t. 130.; Du Ham. Arb., ed. nov., 7. t. 21.; and our *fig.* 1405.

*Spec. Char., &c.* Flowers in heads, opening before the leaves are protruded, and borne on branches or branchlets, developed in some previous year. Leaf with an obvious petiole, and a disk ovate-acuminate, equal at the base, and serrate. A deciduous shrub or low tree. Kentucky, Tennessee, and the banks of the Mississippi. Height 20 ft. to 30 ft.

1405. P. Gmelini

Introduced in 1816; but rare. Flowers small, greenish brown; June. Fruit brown; ripe in September.

The leaf is much smaller than that of P. Richárd*i*, and resembles that of *U*'lmus campéstris, except in being serrated with equal teeth; it is of a lively green on the upper surface, and grey on the under one. Only very small plants are in British gardens.

## Genus III.

*C*E'LTIS *Tourn.* The Celtis, *or Nettle Tree.* *Lin. Syst.* Polygàmia Monœ`cia, or Pentándria Digýnia.

*Identification.* Tourn. quoted by T. Nees ab Esenbeck, in his Gen. Pl. Fl. Germ., fasc. 3. t. 4.
*Synonymes.* *L*òtus of Lobel and other authors; Micocoulier, *Fr.*; Züngelbaum, *Ger.*; Celto. *Ital.*
*Derivation.* The name of *C*éltis is said to refer to the tree having been known to the ancient Celts; and the appellation of Nettle Tree relates to the similarity of the leaves to those of some kind of nettle (*U*rtica).

*Gen. Char.* *Flowers* bisexual, monœcious. *Calyx* bell-shaped, distinct from the ovary, 5—6-parted, the segments imbricate in æstivation. *Stamens* 5—6, inserted into the base of the calyx. *Filaments* incurved. *Anthers* cordate, acuminate. *Stigmas* 2, sessile. *Fruit* a drupe, subglobose. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; serrate, unequal at the base, in two ranks, and rough on the upper surface; with the primary veins forming an acute angle with the midrib, and extending through a considerable portion of the disk of the leaf. *Flowers* small, greenish. *Pulp* of the fruit edible. — Trees, deciduous; natives of Europe, Asia, and North America.

Varying in size and foliage, but all bearing fruit, which is edible, and, though small, is remarkably sweet, and said to be very wholesome. Some of the species, according to Descemet, are very ornamental; particularly *C.* crassifòlia, the branches of which assume the character of a fan; and *C.* occidentàlis, the branches of which droop like a parasol. The wood of *C.* austràlis is valuable; but that of most of the other species is too weak to be of any use in the arts. The leaves of all the species, like those of all the species of *D*iospỳros, drop off almost simultaneously, and thus occasion very little trouble to the gardener in sweeping them up. Propagated by layers or seeds.

1406. *C.* austràlis

♃ 1. *C.* austra`lis *L.* The southern Celtis, *or European Nettle Tree.*

*Identification.* Lin. Sp. Pl., 1478.; Duby et Dec. Bot. Gall., 1. p. 421.
*Synonymes.* *L*òtus árbor *Lob. Ic.* 2. p. 186.; *L*òtus sive *C*éltis *Cam. Epit.* 155.; Lote tree; Micocoulier austral, Micocoulier de Provence, Fabrecoulier, Fabreguier des Provençaux (see *N. Du Ham.*); Arcidiavolo, *Ital.*
*Engravings.* Du Ham. Arb., 2. t. 8.; Dend. Brit, t. 105.; and our *fig.* 1406.

*Spec. Char., &c.* Leaves ovate-lanceolate, oblong-lanceolate, or acuminate, argutely serrated, unequal at the base, rough on the upper surface; soft, from down, on the under one. Flowers solitary. (*Willd.*) A deciduous tree. South of Europe, North of Africa, and Asia. Height 30ft. to 40 ft. Introd. 1796. Flowers greenish; May Fruit black ripe in October.

*Variety.* Brotero, in his *Flora Lusitanica*, mentions a variety with variegated leaves, that was found wild in Portugal.

The tree grows rapidly, more especially when once established, and afterwards cut down; sometimes producing shoots, in the climate of London, 6 or 8 feet in length. It bears pruning remarkably well, at every age. Its leaves are very seldom touched by insects, either on the Continent or in England; and the *C*óssus Lignipérda and Scólytus destrúctor, which are so injurious to the timber of many other trees, never touch either that of *C*éltis, that of Plánera Richárd*i*, or that of *P*ỳrus *S*órbus.

♃ 2. *C.* (A.) CAUCA'SICA *Willd.* The Caucasian Celtis, *or Nettle Tree.*

*Identification.* Willd. Sp. Pl., 4. p. 994.; Poiret in Encycl. Suppl., 3. p. 688.; Rœm. et Schult Syst. Veg., 6. p. 305.
*Engraving.* Our *fig.* 1407. from a specimen in Sir W. J. Hooker's herbarium.

1407. *C.* (a.) caucásica.

*Spec. Char., &c.* Leaves oblong, acuminate, serrate with large teeth, a little narrowed at the base and almost equal there; above, deep green; beneath, pale yellowish; and the veins, when seen under a lens, a little hairy. (*Willd.*) A tree. Caucasus. Height 30 ft. to 40 ft. Introduced in ? 1800. Flowers greenish; June. Fruit globose, reddish.

This is very closely akin to *C.* austràlis; but it differs in its leaves being more ovate, having the acuminate part shorter, and being glabrous.

♃ ♠ 3. *C.* TOURNEFO'RT*II* Lam. Tournefort's Celtis, *or Nettle Tree.*

*Identification.* Lam. Encycl., 4. p. 132.; Willd. Sp. Pl., 4. p. 994.; N. Du Ham., 2. p. 38.
*Synonymes.* *C.* orientàlis minor, foliis minoribus et crassioribus, fructu flavo, *Tourn. Cor.* 42.; *C* orientàlis *Mill. Dict.* No. 3., but, according to the *Nouveau Du Hamel*, not of Lin., which is

1408. *C.* Tournefórtii.

considered a half-hardy plant in Britain; Micocoulier du Levant, Micocoulier d'Orient, *Fr.*; Morgenlandischer Zungelbaum, *Ger.*
*Engravings.* Tourn. Itin., t. 41.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1408.

*Spec. Char., &c.* Leaves, when adult, ovate, acute, unequal at the base, crenately serrate, roughish on the upper surface ; when young, subcordate at the base. Fruit yellow, becoming brown. A low tree, or large shrub. Armenia. Height 10 ft. to 12 ft. Introd. in 1739. Leaves bluntish, rough on both surfaces, glossy. Flowering and fruiting at the same time as *C.* austràlis.

This species is readily known from all others, in winter, by its forming a compact upright-branched bush, or low tree ; and, in summer, by the deep green and dense mass of its rigid-looking foliage. It is rather more tender than *C.* austràlis and *C.* occidentàlis. When propagated by seeds, they should be sown in autumn, as soon as they are ripe ; as, if not sown till spring, they generally remain a year or more in the ground. They prefer a moist soil, and a sheltered situation.

1409. *C.* (T.) sinénsis.

♆ ♃ 4. *C.* (T.) SINE'NSIS *Pers.* The China Celtis, *or Nettle Tree.*

*Identification.* Pers. Syn., 1. p. 292. ; Rœm. et Schult. Syst. Veg., 6. p. 306.
*Engraving.* Our *fig.* 1409. from a specimen in Sir W. J. Hooker's herbarium.

*Spec. Char., &c.* Leaves broad-ovate, obtuse, crenate, largish, glabrous ; veins prominent. (*Pers.*) A low deciduous tree. China. Height 12 ft. to 15 ft.

The plant of this kind, in the Horticultural Society's Garden, seems to differ very little, if at all, from *C.* Tournefórtii.

♆ 5. *C.* WILLDENOVI*A`NA* Schultes. Willdenow's Celtis, *or Nettle Tree.*

*Identification.* Rœm. et Schult. Syst. Veg., 6. p. 306.
*Synonyme.* *C.* sinénsis *Willd. Enum. Suppl.* p. 68., *Willd. Baumz.* p. 81.
*Engraving.* Our *fig.* 1410. from a specimen in Sir W. J. Hooker's herbarium.

*Spec. Char., &c.* Leaves ovate, oblong, acuminate, narrowed to the base, serrate from the middle to the tip ; above, glabrous ; beneath, roughish. (*Schultes.*) A deciduous tree. China. Height 10 ft. to 15 ft. Introduced ?.

1410. *C.* (T.) Willdenovi*à*na.

♆ 6. *C.* OCCIDENTA`LIS *L.* The western Celtis, *or North American Nettle Tree.*

*Identification.* Lin. Sp. Pl., 1478. ; North Amer. Sylva, 3. p. 45. t. 114.
*Synonymes.* *C.* fructu obscuro purpurascente *Tourn. Inst.* 612. ; *C.* oblìqua *Mœnch* ; Nettle Tree, Sugar Berry, *Amer.* ; Bois inconnu, *Ilinois ;* Micocoulier de Virginie, *Fr.*
*Engravings.* N. Du Ham., 2. t. 9. ; Dendr. Brit., t. 147. ; the plates of this species in Arb. Brit., 1st edit., vol. vii. ; and our *fig.* 1411.

*Spec. Char., &c.* Leaves ovate-acuminate, unequal at the base, serrate, rough on the upper surface, hairy on the under one. Flowers solitary. Leaves serrate, with equal teeth. Flowers, in the lower part of the branch, 3 in an axil ; in the upper part, 1 only in an axil. Fruit obscurely purplish. (*Rœm. et Schult.*) A deciduous tree, very closely akin to *C.* austràlis. Canada to Carolina, in woods and near rivers. Height 30 ft. to 50 ft. Introduced in 1656. Flowers small, greenish ; May. Fruit purplish ; ripe in October.

*Varieties.*

♆ C. *o.* 2 *cordàta* Willd., Willd. Baumz. p. 82.—Leaves subcordate at the base, very acuminate ; above, less rough ; beneath, more veiny ; disk 3 in. to 4 in. long.

♆ C. *o.* 3 *scabriúscula* Willd. Sp. Pl. iv. p. 995. *C.* austràlis *Willd. Arb.* 56. ; *C.* ? o. β tenuifòlia *Pers. Syn.* 1. p. 292. ; *C.* áspera *Lodd. Cat.* ed. 1836 ; *C.* orientàlis *Hort.*—Leaves shorter, more slender, less

acuminate; roughish above, in some instances glabrous; disk of leaf 1½ in. to 2 in. long. Louisiana.

Very hardy and ornamental; and it possesses the property of keeping on all its leaves very late, and then, like the other species, dropping them all

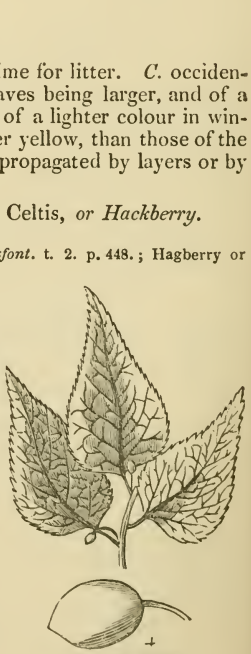
1411. *C.* occidentàlis.

at once, so that they may be swept away at one time for litter. *C.* occidentàlis is readily known from *C.* austràlis by its leaves being larger, and of a lighter and more shining green, and its wood being of a lighter colour in winter. The leaves also die off sooner, and of a brighter yellow, than those of the European species. It is more hardy, and is readily propagated by layers or by seeds in any common soil.

♃ 7. *C.* CRASSIFO'LIA *Lam.* The thick-leaved Celtis, *or Hackberry.*

*Identification.* Lam. Encycl., 4. p. 132.; Pursh Sept., 1. p. 200.
*Synonymes.* *C.* cordifòlia *L'Hérit. Hort. Par.*; *C.* cordàta *Desfont.* t. 2. p. 448.; Hagberry or Hoop-ash, *Amer.*; Micocoulier à Feuilles en Cœur, *Fr.*
*Engravings.* Michx. North Amer. Sylva, 3. t. 115.; N. Du Ham., 2. t. 9.; and our *fig.* 1412.

*Spec. Char., &c.* Leaves with disks ovate-acuminate, 6 in. long, 3 in. to 4 in. broad; heart-shaped, auricled and unequal at the base; serrated with unequal teeth, rather leathery, rough on both surfaces. Flowers 1—2 upon the peduncle. Young branches downy. Bark red brown. Leaves 5 in. long, or more. Petioles slightly hairy, 3—6 lines long. Flowers much like those of *C.* austràlis, upon slender peduncles; the peduncles of the fruit longer than the petioles. Fruit of the size of the bird-cherry. (*Lamarck.*) A deciduous tree, nearly allied to *C.* occidentàlis. Virginia, Kentucky, and Tennessee, on the banks of rivers, and in valleys in fertile soil. Height 20 ft. to 30 ft. Introduced in 1812. Flowers greenish; May. Fruit black; ripe in October.



1412. *C.* crassifòlia.

♃ 8. *C.* LÆVIGA'TA *Willd.* The glabrous-*leaved* Celtis, *or Nettle Tree.*

*Identification.* Willd. Enum. Suppl., p. 68.; Willd. Baumz., p. 81.; Rœm. et Schult Syst. Veg., 6. p. 30.

*Synonymes.* Sprengel has suggested, in the Index to his *Syst. Veg.*, that glabràta is the epithet fitter for this species than lævigàta: *glabràta* signifies rendered, or become, bald; *lævigàta*, rendered perfectly even in surface.
*Engraving.* Our *fig.* 1413. from a specimen in the Museum of the Jardin des Plantes.

1413. *C.* lævigàta.

*Spec. Char., &c.* Leaves ovate-lanceolate, subcordate at the base, nearly entire; glabrous on the upper surface; roughish upon the veins on the under one. (*Willd.*) Louisiana. A very doubtful species. Not yet introduced.

9. *C.* PU'MILA *Ph.* The dwarf Celtis, *or Nettle Tree.*

1414. *C.* pùmila.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 200.; Rœm. et Schult. Syst. Veg., 6. p. 307. ? *C.* àspera.
*Engraving.* Our *fig.* 1414. from a specimen in Sir W. J. Hooker's herbarium.

*Spec. Char., &c.* Leaves ovate, acuminate, serrate with equal teeth; unequal at the base; downy while young, afterwards nearly glabrous on both surfaces. Flowers 3 upon a peduncle. Fruit solitary, ovate. (*Pursh.*) A small straggling deciduous bush. Maryland and Virginia, on the banks of rivers. Height ?. Introd. in 1812. Flowers greenish; May. Fruit black; ripe in October.

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C. *orientàlis* Lin. (R. Mal., 4. t. 40.; and our *fig.* 1415.) is a native of the Himalayas; introduced in 1820. In foliage it resembles *C.* occidentàlis; but we have only seen a very small plant of it, against a wall, in the Horticultural Society's Garden.

1415. *C.* orientàlis.

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## ORDER LXVII. JUGLANDA'CEÆ.

ORD. CHAR. *Flowers* unisexual.—*Male flowers* disposed in aments, each with a scale-like oblique, or 2- or 6-lobed, perianth. *Stamens* hypogynous, indefinite. *Anthers* innate.—*Female flowers* having a double or single perianth, which adheres to the ovarium; the outer one 4-cleft, and the inner of 4 separate parts, when present. *Ovarium* 1-celled, ovule erect. *Styles* 1—2, or wanting. *Drupe* fleshy, containing a 1-celled, 2—4-valved, ragged nut. *Embryo* with cerebriform convolutions, more or less 4-lobed, covered by a membranous testa. (*G. Don.*)

*Leaves* compound, alternate, exstipulate, deciduous; with many leaflets. *Flowers* axillary, the males in catkins, and the females sessile, or on short stalks. — Trees, deciduous; natives of Asia and North America; propagated by seeds. The genera are three, which are thus contradistinguished: —

JU'GLANS *L.* Flowers monœcious. Stamens numerous. Covering of the nut in 1 piece

*Ca*`rya *Nutt.* Flowers monœcious. Stamens 4—6. Covering of the nut in 4 pieces.

Pteroca`rya *Kunth.* Flowers monœcious. Stamens numerous. Covering of the nut winged.

## Genus I.

JU`GLANS *L.* The Walnut Tree. *Lin. Syst.* Monœ`cia Polyándria.

*Identification.* Schreb. Lin. Gen., No. 1446. ; Nutt. Gen. N. Amer. Pl., 2. p. 220.
*Synonymes.* Noyer, *Fr.* ; Walnuss, *Ger.* ; Noce, *Ital.*
*Derivation.* Jùglans is contracted from *Jovis*, Jove's, and *glans*, a mast, or acorn ; and was applied by the Roman writers to this tree, on account of the excellence of its fruit as food, compared with other masts or acorns ; the only species that was known to the Romans having been the Jùglans règia, or common walnut tree.

*Gen. Char., &c.* *Flowers* unisexual, monœcious.—*Male flowers* in cylindrical, drooping, solitary catkins. *Calyx* of 5—6 scales. *Stamens* 18—36.—*Female flowers* solitary or a few in a group, terminal upon a shoot developed in the same year. *Calyx* ovate, including and adhering to the ovary. *Petals* 4. *Stigmas* 2—3, fleshy. *Fruit* a drupe. *Covering* of the nut a fleshy husk of 1 piece that bursts irregularly. *Nut* woody, of 2 valves. (*G. Don.*)

*Leaves* compound, alternate, exstipulate, deciduous; imparipinnate, of 5—19 leaflets, all but the terminal one in opposite or nearly opposite pairs; all serrate, and all spreading in one plane. *Flowers* greenish. Decaying leaves brown.—Trees deciduous, natives of Asia and North America, with coarse-grained wood ; and fruit, in one species at least, much esteemed at the dessert, and valuable for the oil which it contains.

The trees belonging to this order bear, with only two to three exceptions, so close a resemblance to one another in their young state (in which state alone most of them are to be seen in Britain), that we have been unable to satisfy ourselves as to what are species, and what are only varieties. Michaux has arranged the species in the two following sections : —

§ i. *Simple Aments. Growth rapid.* — 1. Jùglans règia *L.* 2. *J.* nìgra *L.* 3. *J.* cathártica *Michx.*, syn. *J.* cinèrea *L.* The order of the flowering of these species in England is, first *J.* règia, then *J.* cinèrea, in a few days after which the catkins of *J.* nìgra expand. The order of fruiting is different ; for, while the fruit of the common walnut begins to drop in the first or second week in September, that of the black walnut does not fall till the end of the same month, and that of the grey walnut not till the beginning of October. To this section may be added *J fraxinifòlia L.*, recently separated from *J*ùglans as the genus Pterocàrya.

§ ii. *Compound Aments, each Peduncle bearing three. Growth slow.* — 1. Jùglans olivæfórmis *Michx.* (syn. *C*àrya olivæfórmis *Nutt.*). 2. *J.* amàra *Michx.* (*C.* amàra *Nutt.*). 3. *J.* aquática *Michx.* (*C.* aquática *Nutt.*). 4. *J.* tomentòsa *Michx.* (*C.* tomentòsa *Nutt.*). 5. *J.* squamòsa *Michx.* (*C.* álba *Nutt.*). 6. *J.* laciniòsa *Michx.* (*C.* laciniòsa *Nutt.*). 7. *J.* porcìna *Michx.* (*C.* porcìna *Nutt.*). 8. *J.* myristicæfórmis *Michx.* (*C.* myristicifórmis *Nutt.*).

✝ 1. *J.* re`gia *L.* The royal, *or common*, Walnut Tree.

*Identification.* Lin. Hort. Cliff., p. 449. ; Willd. Arb., 153. ; Willd. Sp. Pl., 4. p. 455.
*Synonymes.* Núx Jùglans *Dod. Pempt.* 816. ; Núx Jùglans, seu règia vulgàris, *Bauh. Pin.* 417. ; Noyer commun, *Fr.* ; Noseguier *Provence* ; gemeine Walnuss, *Ger.*
*Engravings.* Michx. N. Amer. Sylva, t. 29. ; the plates of this tree in Arb. Brit., 1st edit., vol. vii. ; and our *fig.* 1416.

*Spec. Char., &c.* Leaflets in a leaf, 5—9 ; oval, glabrous, obscurely serrated. Fruit oval, situated upon a short inflexible peduncle. Nut rather oval, rather even. A large deciduous tree. Persia, in the extensive province of Ghilan, on the Caspian Sea, between 35° and 40° of latitude. Height 40 ft.

to 60 ft. In cultivation in England since 1562, and probably long before. Flowers greenish; April and May. Fruit with a green husk, enclosing a brown nut; ripe in September. Decaying leaves brown.

*Varieties.*

♆ J. *r.* 2 *máxima.* *N*úx *J*ùglans frúctu máximo *Bauh. Pin.* 417.; Noix de Jauge *Bon Jard.* ed. 1836 p. 473.; Clawnut *in Kent*, Bannut *in Warwickshire.* — This variety has the fruit double the size of that of the species, being sometimes nearly as large as a turkey's egg; but, in drying, the kernel shrinks to one half its size; and, hence, the fruit of this variety is not good for keeping, but ought to be eaten directly after being gathered. The leaves are large, and the tree has a magnificent appearance; but its timber is not nearly so durable as that of the common walnut.

♆ J. *r.* 3 *ténera.* *N*úx *J*ùglans frúctu ténero et frágile putámine *Bauh. Pin.* 417.; Noyer à Coque tendre, Noyer Mésange *Bon Jardinier*, l. c., Noyer de Mars *in Dauphiné*; the thin-shelled, or Titmouse, Walnut. (See *Hort. Trans.*, vol. iv. p. 517.; and *E. of Gard.*, ed. 1834, p. 942.) — The last name is given to this kind of walnut, because its shell is so tender, that the birds of the titmouse family (mésange, *Fr.*) (Pàrus màjor *L.*; P. cærùleus *L.*; and also P. àter and P. palústris *L.*) pierce it with their bills, and eat the kernel, leaving the remaining part of the fruit on the tree. This variety has the most delicate fruit of all the walnuts: it keeps longer, and produces more oil; but it is not so good a bearer as the other sorts.

♆ J. *r.* 4 *serótina* Desf. *N*úx *J*ùglans frúctu serótino *Bauh. Pin.* 417.; Noyer tardif, Noyer de la Saint-Jean *Bon Jard.* ed. 1836 p. 472., Noyer de Mai *in Dauphiné.* — This is a most valuable variety for those districts where the frosts continue late in spring.

♆ J. *r.* 5 *laciniàta.* *N*úx *J*ùglans fòliis laciniàtis *Reneaulm, N. Du Ham.* iv. p. 174.; *J*ùglans heterophýlla *Hort.*; *J. f*ilicifòlia *Lodd. Cat.* ed. 1836; the Fern-leaved Walnut Tree. — Has cut leaves, somewhat like those of *F*ráxinus excélsior *s*alicifòlia.

*Other Varieties.* The above are the most remarkable and valuable of the varieties of the common walnut; the first three, on account of their fruit; and the last, as a curiosity, on account of its leaves. But in the *Bon Jardinier* five others are enumerated; and in the Horticultural Society's *Fruit Catalogue* for 1832 nine are given, of which the most valuable for cultivation for its fruit is the Highflier; a variety which was originated at Thetford, in Norfolk, and which is held in much esteem in that county and in Suffolk. (*Hort. Trans.*, iv. p. 517.; and *E. of Gard.*, ed. 1835, p. 942.) There is also the Yorkshire walnut, which is much planted in that county. The varieties recommended by Mr. Thompson, as having proved the most prolific in the Horticultural Society's Garden, are: the Round early oval; the Double large French, No. 1. above; the Tender-shelled, No. 2.; and the Thick-shelled. In the gardens of the Trianon, near Paris, there is a hybrid between *J*ùglans règia and *J.* nìgra, which partakes in an equal degree of the properties of both species, and has ripened fruit from which young plants have been raised possessing similar properties. (See *Gard. Mag.*, vol. xvi.)

The wood of the walnut weighs 58 lb. 8 oz. in a green state; and when dried, 46 lb. 8 oz. It is white in young trees, and in that state is subject to be wormeaten; but, as the tree grows old, the wood becomes solid, compact, easy to work, and acquires a brown colour, veined, and agreeably shaded with light brown and black. The most valuable part of the walnut is its fruit, which is much in demand throughout Europe and other parts of the world, for the table, and for various other purposes. In a young and green state, it is pickled and preserved; and, when mature, it is used as food for the poorer classes in the countries where it abounds, and at the dessert of the richer classes. An oil is expressed from the kernel in some parts of France, Switzerland, and Italy.

The species is propagated by the nut; which, when the tree is to be grown chiefly for its timber, is best sown where it is finally to remain, on account of the taproot, which will thus have its full influence on the vigour and prosperity of the tree. Where the tree is to be grown for fruit on dry soils, or in rocky situations, it ought also to be sown where it is finally to remain, for the same reasons. In soils on moist or otherwise unfavourable subsoils, if sown where it is finally to remain, a tile, slate, or flat stone, should be placed under the nut at the depth of 3 or 4 inches, in order to give the taproot a horizontal direction; or, if this precaution has been neglected, after the plants have come up, the taproot may be cut through with a spade 6 or 8 inches below the nut, as is sometimes practised in nurseries with young plants of the horsechestnut, sweet chestnut, walnut, and oak. On the other hand, when the walnut is planted in soil which has a dry or rocky subsoil, or among rocks, no precaution of this sort is necessary: on the contrary, it would be injurious, by preventing the taproot from descending, and deriving that nourishment from the subsoil which, from the nature of the surface soil, it could not there obtain. The varieties may be propagated by budding, grafting, inarching, or layering, in common soil. The walnut tree attains the largest size in a deep loamy soil, dry rather than moist; but the fruit has the best flavour, and produces most oil, when the tree is grown in calcareous soils, or among calcareous rocks: in a wet-bottomed soil, whatever may be the character of the surface, it will not thrive.

1416. *J. regia.*

### ✱ 2. *J.* NIGRA *L.* The black-*wooded* Walnut Tree.

*Identification.* Lin. Hort. Cliff., p. 449.; Willd. Sp. Pl., 4. p. 456.; Pursh Sept., 2. p. 636.
*Synonymes.* The black Walnut, the black Hickory Nut, *N. Amer.*; Noyer noir, *Fr.*; Noce nera, *Ital.*
*Engravings.* Michx. Arb., 1. t. 1.; Michx. North Amer. Sylva, t. 30.; Dend. Brit., t. 158.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1417.

*Spec. Char., &c.* Leaflets, in a leaf, 13—17; cordate-acuminate, unequal at the base, serrated, and somewhat downy; lateral ones upon short petiolules. Fruit globose, roughish with minute prominent points, situated upon a short inflexible peduncle. Nut globose, somewhat compressed at the sides, ridged and furrowed. (*Michx.*) A large deciduous tree.

1417. *J. nigra*

New England to Florida, in fertile soil in woods. Height 60 ft. to 100 ft. Introduced in 1656. Flowers greenish; April and May. Fruit with a green husk, enclosing a brown nut.

*Varieties.* None are in cultivation; but a hybrid between this species and *J.* nigra has been noticed in p. 733.

The growth of the tree is remarkably quick, more so than that of the European walnut. At 8 or 10 years of age it begins to bear, and age increases its fertility. No tree will grow under its shade, and even grass is injured by it. In 40 years, in good soil, it will attain the height of from 50 ft. to 60 ft. The heart-wood, which is black, remains sound for a long period, when exposed to heat and moisture; but the sap-wood speedily decays. When properly seasoned, the wood is strong, tough, and not liable to warp or split. It is never attacked by worms, and has a grain sufficiently fine and compact to admit of a beautiful polish. The tree is universally raised from the nut, which, after being imported, ought to be sown immediately, as it seldom retains its vital power more than six months after it has ripened.

♃ 3. *J.* CINE'REA *L.* The grey-*branched* Walnut Tree, *or Butter-nut.*

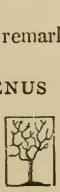
*Identification.* Lin. Sp. Pl., 1415.; Willd. Sp. Pl., 4. p. 456.; Pursh Sept., 2. p. 636.
*Synonymes.* *J.* cathártica *North Amer. Sylva*, 1. p. 160—165. t. 31.; *J.* oblónga *Mill. Dict.* No. 3.; Oil-nut, White Walnut, *Amer.*; Noyer cendré, *Fr.*; graue Walnuss, *Ger.*
*Engravings.* Michx. Arb., 1. t. 2.; Michx. North Amer. Sylva, t. 31.; and our *fig.* 1418.

*Spec. Char., &c.* Petiole villous. Leaflets, in a leaf, 15—17; lanceolate, rounded at the base, serrate with shallow teeth; tomentose beneath; lateral ones sessile. Fruit oblong-ovate, with a tapered tip, downy, covered with viscid matter in small transparent glanded hairs, pendulous on a flexible peduncle. Nut oval, with an acuminate tip, very rough with prominent irregular ridges. (*Michx.*) A large deciduous tree. Canada to Virginia, and on the Alleghany Mountains. Height 30 ft. to 60 ft. Introduced in 1656. Flowers greenish; April and May. Fruit a green husk, enclosing a brown nut; ripe in October.

1418. *J.* cinèrea.

This species grows with equal rapidity, when young, as the *J.* nigra; but the trunk ramifies at a less height; and the branches extending more horizontally than those of most other trees, and spreading widely, a large and flat tufted head is formed, which gives the tree, in America, more especially in exposed situations, a most remarkable appearance.

## GENUS II.



*CA'RYA. Nuttall.* THE CARYA, *or* HICKORY TREE. *Lin. Syst.* Monœ'cia Tetr-Hex-ándria.

*Identification.* Nutt. Gen. N. Amer. Pl., 2. p. 220.; Lindley Nat. Syst. of Bot., p. 180.

*Synonymes.* Jùglans sp. *Lin.*, *Willd.*, *Michx.*; *Hicòrius* Rafinesque; Hickory, *Amer.*
*Derivation.* "*Karua* (Carya), the walnut tree: the name which the Greeks applied to Jùglans règia." (*Nuttall.*) The name of Cârya was applied to the common walnut by the Greeks, in honour of Carya, daughter of Dion, king of Laconia, who was changed by Bacchus into that tree. Diana had the surname of Caryata from the town of Carya, in Laconia, where her rites were always celebrated in the open air, under the shade of a walnut tree, Plutarch says the name of Cârya was applied to the walnut tree from the effect of the smell of its leaves on the head.

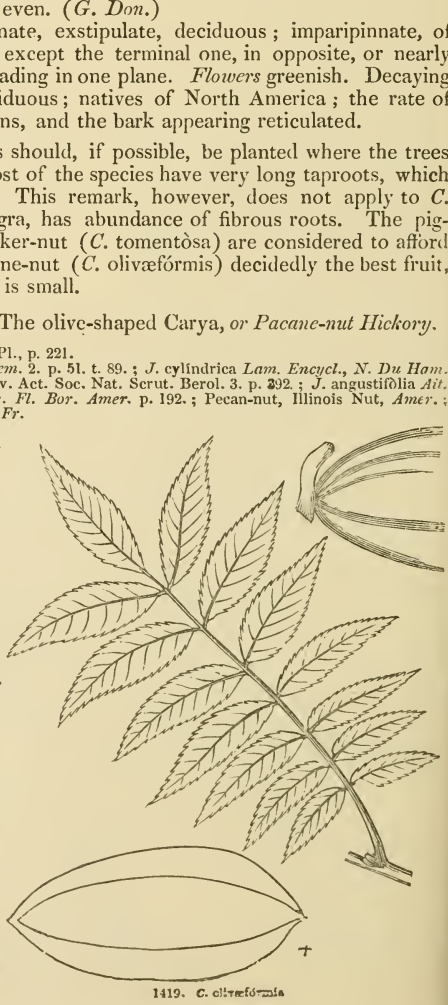
*Gen. Char. Flowers* unisexual, monœcious. Male, female, and leaves all upon a shoot developed from one bud in the year of the flowering. The male flowers borne at the base of the shoot, below the leaves, or in the axils of the lower leaves; the female flowers, a few together about the tip of the shoot.—*Male flowers* in slender pendulous catkins, that are disposed 3 upon a peduncle. *Calyx* a 3-parted minute leaf. *Stamens* 4—6.—*Female flowers. Calyx* including and adhering to the ovary; its tip free, and 4-cleft. *Stigma* sessile upon the ovary, partly discoid, 2—4-lobed *Fruit* a drupe. *Husk* fleshy, separating into 4 equal valves. *Nut* with 4 or more bluntish angles in its transverse outline; the surface pretty even. (*G. Don.*)

*Leaves* compound, alternate, exstipulate, deciduous; imparipinnate, of 5—15 leaflets, serrate; all, except the terminal one, in opposite, or nearly opposite, pairs; and all spreading in one plane. *Flowers* greenish. Decaying leaves brown.—Trees, deciduous; natives of North America; the rate of growth slower than a Jùglans, and the bark appearing reticulated.

When propagated, the nuts should, if possible, be planted where the trees are intended to remain, as most of the species have very long taproots, which are nearly destitute of fibres. This remark, however, does not apply to *C.* amàra, which, like Jùglans nìgra, has abundance of fibrous roots. The pignut (*C.* porcìna) and the mocker-nut (*C.* tomentòsa) are considered to afford the best timber; and the pacane-nut (*C.* olivæfórmis) decidedly the best fruit, though the nut in this species is small.

♃ 1. *C.* OLIVÆFO'RMIS *Nutt.* The olive-shaped Carya, *or Pacane-nut Hickory.*

*Identification.* Nutt. Gen. N. Amer. Pl., p. 221.
*Synonymes.* Jùglans rùbra *Gærtn. Sem.* 2. p. 51. t. 89.; *J.* cylíndrica *Lam. Encycl.*, *N. Du Ham.* 4. p. 179.; *J. Pècan* Mühlenb. in Nov. Act. Soc. Nat. Scrut. Berol. 3. p. 392.; *J.* angustifòlia *Ait. Hort. Kew.*; *J.* olivæfórmis *Michx. Fl. Bor. Amer.* p. 192.; Pecan-nut, Illinois Nut, *Amer.*; Pécanier, Pacanus, Noyer Pécanier, *Fr.*
*Engravings.* Michx. Arb., 1. t. 3. North Amer. Sylva, 1. t. 32.; and our *fig.* 1419.



1419. *C.* olivæfórmis

*Spec. Char., &c.* Leaflets, in a leaf, 13—15; ovate-lanceolate, serrate; lateral ones nearly sessile, and somewhat falcate. Fruit oblong, widest above the middle. Fruit and nut each with four angles in its transverse outline. Nut in form and ? size compared with the fruit of the olive, narrowly elliptical. (*Michx.*) A large deciduous tree. Banks of the Ohio, Mississippi, and other rivers in Upper Louisiana. Height 60 ft. to 70 ft. Introduced in 1766. Flowers greenish; April and May. Fruit with a green husk, enclosing a yellowish nut.

The shell is smooth and thin, but too hard to be broken by the fingers. The

kernel is full, and, not being divided by ligneous partitions, is easily extracted, and of an agreeable taste. The wood is coarse-grained, and, like that of the other hickories, is heavy and compact, possessing great strength and durability. The nuts are exported to the West Indies, and to the ports of the United States ; and Michaux considers them as more delicately flavoured than any of the nuts of Europe.

### ☿ 2. *C.* AMA`RA *Nutt.* The bitter-*nut* Carya, *or Hickory.*

*Identification.* Nutt. Gen. N. Amer. Pl., 2. p. 222
*Synonymes.* Jùglans amàra *Michx. Arb.* 1. p. 170. ; Bitter-nut, White Hickory, Swamp Hickory, *Amer.*
*Engravings.* Michx. North Amer. Sylva, 1. t. 33. ; and our *fig.* 1420.

*Spec. Char., &c.* Leaflets, in a leaf, 7—9 ; ovate-oblong, acuminate, serrate with deep teeth, glabrous ; lateral ones sessile. Sets of catkins in pairs. Fruit roundish-ovate, bearing, in its upper half, 4 wing-like ridges ; husk thin and fleshy, softening and decaying, and never becoming ligneous, as in the other species. Nut subglobose, broader than long, tipped with a mucro. Seed bitter. (*Michx.*) A large deciduous tree. New England to Maryland, in dry woods in fertile soil, on the mountains. Introduced in 1800. Flowers greenish ; April. Fruit with a greenish husk, enclosing a white nut ; ripe in October.

The fruit is very small, and produced in great abundance. The husk, which is thin, fleshy, and surmounted on its upper half by 4 appendages in the form of wings, never becomes ligneous, like those of the other hickories, but softens

1420. *C.* amàra.

and decays. The shell is smooth, white, and thin enough to be broken with the fingers ; the kernel is remarkable for the deep inequalities produced on every side by its foldings. It is so harsh and bitter, that squirrels and other animals will not feed upon it while any other nut is to be found.

### ☿ 3. *C.* AQUA'TICA *Nutt.* The aquatic Carya, *or Water Bitter-nut Hickory.*

*Identification.* Nutt. Gen. N. Amer. Pl., 2. p. 222.
*Synonyme.* Jùglans aquática *Michx. Arb.* 1. p. 182.
*Engravings.* Michx. North Amer. Sylva, t. 34. ; and our *figs.* 1421. and 1422.

*Spec. Char., &c.* Leaflets, in a leaf, 9—11 ; narrowly lanceolate, serrate. Very similar to the leaves of *Pérsica* vulgàris *Mill.* ; the lateral ones sessile. Fruit peduncled, ovate, with 4 rather prominent ridges at the seams of the husk. Nut broadly oval, angular, a little depressed at the sides, roughish, reddish. (*Michx.*) A middle-sized deciduous tree. South Carolina to Georgia, in swamps and rice fields. Height 40 ft. to 50 ft. Introduced in 1800. Flowers greenish ; April. Fruit, with a green husk, enclosing a reddish nut ; ripe in October.

The water bitter-nut hickory is a tree with rather slender branches. Its leaves are 8 or 9 inches long, and of a beautiful green : they are composed of 4 or 5 pairs of sessile leaflets, surmounted by a petiolated odd one. The leaflets

are serrated, long in proportion to their breadth, and very similar to the leaves of a peach tree. The husk is thin ; and the nuts are small, somewhat rough, of a reddish colour, and very tender. The kernel is in folds, and too bitter

1421. *C.* aquàtica.

1422. *C.* aquàtica.

to be eatable. This species appears to require a great deal of warmth and moisture. The wood is light, weak, and very far inferior to every other kind of hickory.

♀ 4. *C.* TOMENTO`SA *Nutt.* The tomentose Carya, *or Mocker-nut Hickory.*

*Identification.* Nutt. Gen. N. Amer. Pl., 2. p. 221.
*Synonymes.* Jùglans álba *Lin. Sp. Pl.* 1415. according to *Willd. Sp. Pl.*, in Pursh's *Flora* this is referred to *J.* álba *Michx. Fl. Bor. Amer.*, *C.* álba *Nutt.*; *J.* álba *Mill. Dict.* No. 4.; *J.* tomentòsa *Michx. Fl. Bor. Amer.* 2. p. 192.; White-heart Hickory, common Hickory, *Amer.*; Noyer dur, *Illinois.*
*Engravings.* Michx. Arb., 1. t. 6.; North Amer. Sylva, 1. t. 35.; and our *fig.* 1423.

*Spec. Char., &c.* Petiole downy beneath. Leaflets, in a leaf, 7—9; oboyate-lanceolate, serrate with shallow teeth; downy and rough beneath; lateral ones sessile. Catkin very tomentose. Fruit, on some trees, globose, with depressions in the husk at the sutures; on other trees, oblong, with angles at the sutures. Nut with 4—6 angles in its transverse outline, having a short and capitate beak at the tip. Shell somewhat channeled. (*Michx.*) A large deciduous tree, New England to Virginia, and on the Alleghany Mountains, in forests where the soil is fertile. Height 50 ft. to 60 ft. Introduced in ? 1766. Flowers pale rose-coloured; May. Fruit with a green huks, enclosing a brownish nut; ripe in November.

1423. *C.* tomentòsa.

*Variety.*

ϒ C. *t.* 2 *máxima* Nutt. — Leaflets 7 in a leaf, ovate-lanceolate, acuminate, serrulate; beneath, softly pubescent, and of a paler colour; terminal leaflet subpetiolate. Fruit partly globose, of nearly twice the size ordinary in the species; as large as an apple. Husk exceedingly thick. Nut quadrangular, very large; having a thick shell, and a mucro that is prominent, quadrangular, and truncate at the tip. (*Nutt.*)

The leaves grow so rapidly, that Michaux has seen them gain 20 in. in 18 days. With the first frosts, they change to a beautiful yellow, and fall off soon after. The fruit is ripe in November, and varies very much in size and shape. The shell is very thick, and extremely hard; and the kernel, which is sweet, though small, is so difficult to extract, because of the strong partitions which divide it, as to have given rise to the name of mocker-nut. There are numerous specimens of this tree in the Bois de Boulogne, which were sown there by Michaux fils in 1822; and in 1840, when we saw them, were from 20 ft. to 30 ft. high.

ϒ 5. *C.* A'LBA *Nutt.* The white-*nutted* Carya, *or Shell-bark Hickory.*

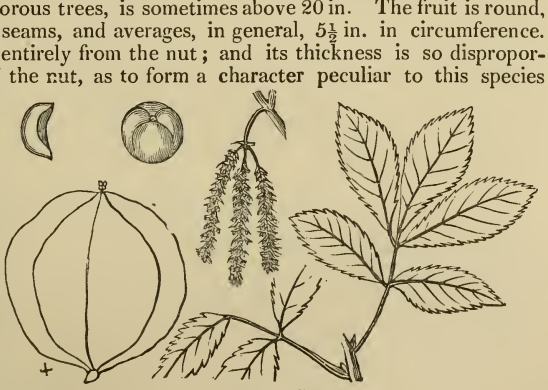
*Identification.* Nutt. Gen. N. Amer. Pl., 2. p. 221.

*Synonymes.* Jùglans álba *Michx. Fl. Bor. Amer.* 2. p. 193.; *J.* álba ovàta *Marsh. Arb.* 115.; *J.* squamòsa *Michx. Arb.* 1. p. 190.; *J.* compréssa *Gærtn. Sem.* 2. p. 51.; Shag-bark Hickory, Scaly-bark Hickory, Kisky Thomas Nut, *Amer.*; Noyer tendre, *Illinois.*

*Engravings.* Michx. N. Amer. Sylva, 1. t. 36.; Dend. Brit., t. 148.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.*. 1424.

*Spec. Char., &c.* Leaflets, in a leaf, 5—7; oblong-acuminate, argutely serrate; villous beneath; the pair nearest to the base of the petiole rather remote from it; terminal leaflet nearly sessile. Catkin glabrous. Fruit depressedly globose, with 4 longitudinal furrows, in the line of which the husk divides into 4 valves that become wholly separate. Nut compressed, oblique, 4-angled in its transverse outline, white. Bark exfoliating in long narrow strips. (*Michx.*) A large deciduous tree. New England to Carolina, and throughout the Alleghany Mountains, in forests where the soil is fertile. Height 80 ft. to 90 ft. Introduced in 1629. Flowers greenish; May. Fruit with a greenish husk, enclosing a white nut; ripe in November.

The growth of the leaves is so rapid, that in a month they attain their full length, which, in vigorous trees, is sometimes above 20 in. The fruit is round, with four depressed seams, and averages, in general, 5½ in. in circumference. The husk separates entirely from the nut; and its thickness is so disproportioned to the size of the nut, as to form a character peculiar to this species and *C.* sulcàta. The nuts are white (whence the name of *C.* álba), compressed at the sides, and marked by four distinct angles, which correspond to the divisions of the husk. The kernel is fuller and sweeter than that of any other American walnut or hickory, except that of *C.* olivæfórmis; but it is inferior to the fruit of the European walnut.



1424. *C.* álba.

ϒ 6. *C.* SULCA'TA *Nutt.* The furrowed-*fruited* Carya, *or Hickory.*

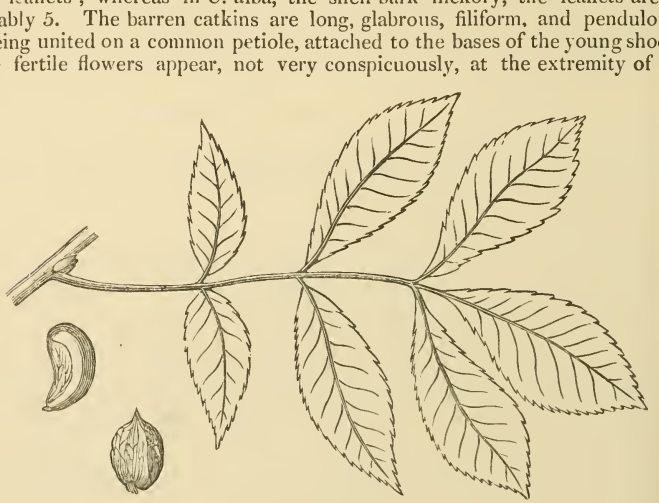
*Identification.* Nutt. Gen. N. Amer. Pl., 2. p. 221.

*Synonymes.* Jùglans laciniòsa *Michx. Arb.* 1. p. 199.; *J.* mucronàta *Michx. Fl. Bor. Amer.* 2. p. 192.; *J.* sulcàta *Willd. Arb.* 154. t. 7.; thick Shell-bark Hickory, Springfield Nut, Gloucester Nut, *Amer.*

*Engravings.* Willd. Arb., t. 7.; Michx. Arb., 1. t. 8.; North Amer. Sylva, t. 37.; and our *fig.* 1425.

*Spec. Char., &c.* Leaflets, in a leaf, 7—9; obovate-acuminate, argutely serrate; downy beneath. Fruit roundish, having 4 longitudinal ridges that extend from the tip to the middle, and 4 intervening depressions, or furrows. Husk dividing from one extremity to the other, in the line of the furrows, into 4 equal valves. Nut subglobose, slightly compressed, having a long mucro at the tip, and a shorter stouter one at the base; yellowish. Bark exfoliating in long narrow strips. (*Michx.*) A large deciduous tree. Alleghany Mountains, in fertile valleys. Height 60 ft. to 80 ft. Introduced in 1804. Flowers greenish; May. Fruit with a greenish husk, enclosing a yellowish nut; ripe in November.

The leaves vary in length from 18 in. to 20 in., and are composed of from 7 to 9 leaflets; whereas in *C.* álba, the shell-bark hickory, the leaflets are invariably 5. The barren catkins are long, glabrous, filiform, and pendulous; 3 being united on a common petiole, attached to the bases of the young shoots. The fertile flowers appear, not very conspicuously, at the extremity of the



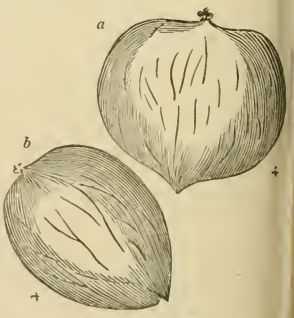
1425. *C.* sulcàta.

shoots of the same spring. They are succeeded by a large oval fruit, more than 2 in. long, and 4 or 5 inches in circumference. It has four depressed seams, which, at complete maturity, open throughout their whole length for the escape of the nut. The shell is thick, and of a yellowish hue; while that of the *C.* álba is white.

### ♃ 7. *C.* PORCI'NA *Nutt.* The Pig-*nut* Carya, *or Hickory.*

*Identification.* Nutt. Gen. N. Amer. Pl., 2. p. 222.
*Synonymes.* Jùglans porcìna α obcordàta *Michx. Arb.* 1. p. 206.; *J.* porcìna var. with fruit round, and somewhat rough, *Michx. North Amer. Sylva* 1. p. 196.; *J.* obcordàta *Mühlenb.* in *Nov. Act. Soc Nat. Scrut. Berol.* 3. p. 392.; Pig-nut, Hog-nut, Broom Hickory.
*Engravings.* Michx. Arb., 1. t. 9. f. 3, 4.; North Amer. Sylva, 1. t. 38. f. 3, 4.; Dend. Brit., t. 167.; and our *figs.* 1426, 1427. and 1428.

*Spec. Char., &c.* Leaflets 5—7 in a leaf, ovate-acuminate, serrate, glabrous, dotted beneath with dots of resinous matter; terminal leaflet sessile. Nut obcordate. Fruit round, somewhat rough. (*Michx.*) See our *fig.* 1426. *a*, and *fig.* 1428. *a*. A lofty tree. North America, in the middle, western, and southern states, on the bor-




1426. *C.* porcina.

ders of swamps. Height 70 ft. to 80 ft. Introd. 1756. Flowers greenish; May. Fruit with a greenish husk, enclosing a brownish nut; ripe November.

1427. *C.* porcìna.

*Variety.*

ǂ C. *p.* 2 *glàbra.* Jùglans porcìna β ficifórmis *Michx. Arb.* i. p. 209.; *J.* glàbra *Mühl.* in *Nov. Act. Soc. Nat.* &c. iii. p. 391. (Our *figs.* 1426. *b*, and 1428. *b*.) — Husk of the fruit shaped like a small fig, instead of being round, like the species.

The leaves generally consist of three pairs of leaflets, and an odd one. The leaflets are 4 or 5 inches long, acuminated, serrated, nearly sessile, and glabrous on both sides. On vigorous trees which grow in shady exposures the petiole is of a violet colour. The husk of the fruit is thin, of a beautiful green; and, when ripe, it opens through half its length for the passage of the nut, which is small, smooth, and very hard, on account of the thickness of the shell. The kernel is sweet, but meagre, and difficult to extract, from the firmness of the partition. These nuts, in America, are never carried to market, but serve for food for swine, racoons, and numerous squirrels which people the forests. The wood is stronger and better than that of any other kind of hickory. There were numerous specimens in the Bois de Boulogne in 1840, which were sown by Michaux fils in 1822.

1428. *C.* porcìna.

ǂ 8. *C.* MYRISTICÆFO'RMIS *Nutt.* The Nutmeg-like-*fruited* Carya, *or Nutmeg Hickory.*

*Identification.* Nutt. Gen. Amer. Pl., 2. p. 222.

*Synonyme.* Jùglans myristicæfórmis *Michx. Arb.* 1. p. 211.
*Engravings.* Michx. Arb., 1. t. 10.; North Amer. Sylva, t. 39.; and our *fig.* 1429.

*Spec. Char., &c.* Leaflets, in a leaf, 9; ovate-acuminate, serrate, glabrous; the terminal one nearly sessile. Fruit ovate, roughish. Nut oval, with a small point at each end, even, brown with longitudinal lines of white; in which it resembles a nutmeg, which is the seed of Myrística moschàta; and hence the epithet myristicæfórmis. (*Michx.*) A large deciduous tree. South Carolina.

1429. *C.* myristicæfórmis.

Very little is known of this tree, which Michaux described from a branch and a handful of nuts, which were given to him by a gardener at Charleston.

♃ 9. *C.* MICROCA'RPA *Nutt.* The small-fruited Carya, *or Hickory.*

*Identification.* Nutt. Gen. N. Amer. Pl., 2. p. 221.
*Engraving.* Our *fig.* 1430. from a specimen in the Museum of the Jardin des Plantes, at Paris.

*Spec. Char., &c.* Leaflets, in a leaf, about 5; oblong-lanceolate, conspicuously acuminate, argutely serrulate, glabrous; glandular beneath; terminal one subpetiolate. Fruit subglobose. Husk thin. Nut partly quadrangular, small; its shell rather thin, its mucro obsolete and truncate. Fruit much like that of *C.* tomentòsa, and eatable; but very small, the nut not exceeding the size of a nutmeg. Catkins trifid, very long, glabrous, without involucre; scales 3-parted, their lateral segments ovate, the central one linear. Anthers pilose, mostly 4, sometimes 3, sometimes 5. Female flowers 2 or 3 together; common peduncle bracteolate. Segments of the calyx very long, and somewhat leafy. Stigma sessile, discoid, 4-lobed, somewhat rhomboidal. (*Nuttall*) A large deciduous tree. Philadelphia, on the banks of the Schuylkill.

1430. *C.* microcàrpa.

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*Other Species of Càrya.* — *C.* ambígua (*Jùglans ambígua Michx.*) is described in books, but not yet introduced; *C.* pubéscens *Link* is supposed to have been introduced; and *C.* rígida (*J.* rígida *Lodd. Cat.*) is in the Hackney Arboretum, but appears to be only a variety of *C.* álba. *C.* integrifòlius *Spreng.* (*Hicòrius* integrifòlius *Rafinesque*) is probably an imaginary species. From the circumstance of the species of *Jùglans* and *Càrya* crossing so freely with one another, and the seeds of the produce coming true to the cross-breeds thus produced, it is not unlikely that some of the species, even of the native woods of America, may have been so originated. The fact stated in p. 733. respecting a hybrid between *Jùglans* règia and *J.* nìgra would seem to justify these remarks.

## Genus III.

### PTEROCA'RYA *Kunth.* The Pterocarya. *Lin. Syst.* Monœ'cia ? Polyándria.

*Identification.* Kunth in An. Sciences Naturelles, 2. p. 346.; Lindley Nat. Syst. of Bot., p. 180.
*Synonyme.* Jùglans sp. *Lin.*
*Derivation.* *Pteron*, a wing; *karua*, the common walnut. The fruit has wings; and, except in these, resembles that of the walnut.

*Gen. Char., &c.* *Flowers* unisexual, monœcious.—*Male flowers* in spikes. *Stamens* in a flower many.—*Female flowers* in long pendulous spikes, and distant, sessile, and without bracteas. *Calyx* connate with the ovary. *Ovary* and part of the calyx flagon-shaped, bearing two wings above the base; their direction transverse and oblique; cell 1; ovule 1, erect. *Style* 1, very short. *Stigmas* 2, large, spreading, revolute. *Fruit* sub-drupaceous, angled; having two wings, as the ovary; much tapered to the tip, not opening; containing a bony nut, which has 4 cells in its lower part, whose partitions do not extend to the top. (*G. Don.*)

*Leaves* compound, alternate, exstipulate, deciduous; leaflets about 17, sessile, unequal at the base, not dotted, serrate. *Fruit* small. Decaying leaves brown.—A tree, deciduous; native of the eastern part of Caucasus; propagated by layers, but the plant is somewhat tender.

#### ♃ 1. P. cauca'sica *Kunth.* The Caucasian Pterocarya.

*Identification.* Kunth in Annal. des Scien. Nat., 2. p. 346.
*Synonymes.* Jùglans Pterocàrya *Michx. Fl. Bor. Amer.* 2. p. 192., *Mey. Verz. Pflanz. Cauc.* p. 134.; *Rhus* obscùrum *Bieb. Fl. Taur. Cauc.* No. 606.; *J. fraxinifòlia Lamond MS., N. Du Ham.* 4. p. 182.; Fráxinus lævigàta *Hort. Par.*
*Engravings.* Our *fig.* 1431. from a seedling plant; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and *fig* 1432. from a plant in the Horticultural Society's Garden.

1431 P. caucásica.

*Spec. Char., &c.* Leaflets, in a leaf, about 19; ovate-oblong, acuminate, argutely serrate, glabrous; each with the lower or hinder side of its base attached to the petiole. (*Lamarck.*) A low deciduous tree. Mount Caucasus, in moist woods. Height 20 ft. to 40 ft. Introduced in ? 1800. Flowers greenish; May.

For small gardens and diminutive arboretums, this tree may serve very well to exemplify the *Juglandàceæ*. Care should be taken to train it to a single stem, and not to plant it in soil so rich and moist as to prevent it from ripening its wood. Perhaps, also, something might be gained in point of hardiness by grafting it upon the common walnut; either on the collar of the stock, in order to form dwarf trees or bushes; or standard high, in order to form trees that would from the first have clear straight stems, and as they would ripen their wood better, in consequence of growing slower than the low trees or bushes, so they would perhaps show blossoms and ripen fruit.

1432. P. caucásica.

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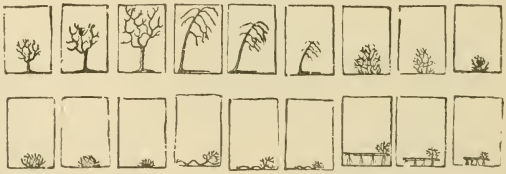
## Order LXVIII. SALICA'CEÆ.

*Ord. Char.* *Flowers* unisexual, disposed in aments, one in the axil of each scale.—*Male flowers* disposed in cylindrical catkins, with a small gland-like perianth, and from 2—30 stamens, which are sub-adnate to the gland, generally distinct, rarely monadelphous.—*Female flowers* disposed in dense ovate or cylindrical catkins, each with a free simple perianth. *Ovarium* superior. *Style* 1. *Stigmas* 2, often bifid. *Capsule* 1-celled, 2-valved, many-seeded. *Seeds* small, pendulous, downy. *Albumen* none. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; serrated or entire. *Flowers* in catkins. Decaying leaves yellow or black. — Trees deciduous; natives of Europe, Asia, and North America. The genera are two, which are thus characterised: —

*Sa'lix L.* Bracteas entire. Stamens 1—3.
*Po'pulus L.* Bracteas jagged. Stamens 8.

### Genus I.



*SA'LIX L.* The Willow. *Lin. Syst.* Dioe'cia Diándria.

*Identification.* Lin. Gen., 514.; Juss., 408; Smith in Rees's Cyclo., vol. 31.; Fl. Br., 1039.; Tourn., t. 364.; Lam., t. 802.; Gærtn., t. 90.

*Synonymes.* Harab, *Hebrew*; Itea, *Gr.*; Salix, *Lat.*; Saule, *Fr.*; Weide and Felber, *Gr.*; Salcio, *Ital.*; Sauze, *Span.*; Wide, *Swed.*; Wilge, *Flem.*; Withig, *Anglo-Sax.*; Willow, Withy, Sallow, Osier, *Engl.*; Saugh, *Scotch.*

*Derivation.* From *sal*, near, and *lis*, water, *Celtic*; in reference to its general habitat. According to others, from *salire*, to leap; on account of the extraordinary rapidity of its growth.

*Gen. Char., &c.* *Bractea* to the flower of each sex entire.—*Male flower* consisting of 1—5 stamens, more in a few species, and of one or more glands inserted contiguously to the stamens.—*Female flower* consisting of a pistil that is stalked or sessile, or nearly sessile, and one or more glands inserted contiguously to it. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; more or less lanceolate and serrated. *Flowers* yellow. Decaying leaves mostly yellow. — Trees or shrubs, deciduous; natives of Europe, Asia, Africa, and North America readily propagated by cuttings in any moist soil.

The species vary from 2 or 3 inches to 50 or 60 feet, and even to 80 or 90 feet, in height. The branches are round and flexible ; the leaves in all cases deciduous, and the sexes, with scarcely any exceptions, on different plants. The appearance of the male plant and the female plant, of the same species, is generally more or less different ; and hence one of the great difficulties in the study of this genus, the species of which may be described as in a state of inextricable confusion. The growth of the dwarfest species, such as *S.* herbàcea, is slow, and, in its native habitat, not above 1 in. a year, and often not so much ; that of the larger shrubs, in their native habitats, varies from 5 or 6 inches to as many feet, especially when the plants are young or newly cut down. The growth of some of the kinds cultivated for basket-making or hoops, in good soil, when cut down every year or every two years, is often from 8 ft. to 12 ft. in a single season. The growth of the tree kinds, more especially of *S.* álba and *S.* Russell*iàna*, is equally rapid when young ; so that in ten years, in the climate of London, in suitable soil, and within reach of water, these kinds will attain the height of 50 or 60 feet. The branches of most of the tree kinds have an upward direction, and have a flame-like motion in the wind, as in *S.* álba ; but in others they are spreading, as in *S.* càprea ; and, in one instance, drooping in a very decided manner, as in *S.* babylónica.

Almost all the willows are found naturally either in a cold soil and moist climate, or, if in a sandy soil, within reach of water. The low-growing kinds are sometimes, however, found in dry arid soils ; but in such soils they are never in a thriving state. Willows are very seldom found growing on moist peat bogs ; the only species observed in such situations by Steele being the *S.* càprea and the *S.* pentándra, and these only sparingly in peat bog that was dry. All the willows are propagated by cuttings ; though some of the more rare alpine kinds root with difficulty. Some species propagate very readily from seeds ; and there can be little doubt that grafting, inarching, and other similar modes of propagation, would be as successful in this genus as in most others.

The best kinds of willow for growing as timber trees are :—*S.* álba, which will attain the height of from 60 ft. to 80 ft. in 20 years. *S.* Russell*iàna* and *S.* frágilis, which are frequently confounded ; and, indeed, in external appearance, differ very slightly from each other except in size : *S.* Russell*iàna* growing as rapidly, and to as great a height, as *S.* álba ; but *S.* frágilis, though it grows with equal rapidity, not attaining so great a height. *S.* càprea, and some of its allied kinds, which grow as rapidly as *S.* frágilis for three or four years ; and will attain nearly the same height as that species in the same time ; that is, on good soil, from 30 ft. to 40 ft. in twenty years : according to Bosc, *S.* càprea is the most valuable of all the tree willows grown in France. Other willows which attain a timber-like size, or about 30 or 40 feet in twenty years, are, *S.* triándra, *S.* rotundàta, *S.* lùcida, *S.* Meyer*iàna*, *S.* præ`cox, *S.* Pontederà*na*, *S.* acuminàta, *S.* pentándra, *S.* vitellìna, and *S.* amygdálina. Many of the other species, in good soil, if allowed sufficient room, and trained to a single stem, would attain the size and character of trees ; but with a view to timber, the four species first mentioned, viz. *S.* álba, *S.* Russell*iàna*, *S.* frágilis, and *S.* càprea, are alone worth cultivating. The best sorts for coppice-wood are *S.* càprea and its allied kinds.

Almost all the species of willows may be grown for basket rods, but some are greatly preferable to others. The most vigorous-growing basket willow is, unquestionably, *S.* viminàlis ; and it is also the sort most generally cultivated for that purpose. It has no disadvantage that we are aware of, except that in cold wet seasons, and in a moist soil, it does not always ripen the points of its shoots. *S.* rùbra, *S.* Forby*àna*, *S.* decípiens, and *S.* stipulàris are excellent species, of less vigorous growth than *S.* viminàlis, which ripen the points of their shoots perfectly in most seasons : the best of these is, perhaps, *S.* Forby*àna*. *S.* triándra is nearly as vigorous as *S.* viminàlis. *S.* hèlix, *S.* vitellìna, and *S.* purpùrea are very desirable species where small

tough rods are required. Various other sorts might be mentioned ; but these we consider as by far the most valuable.

As gardenesque objects, all the shrubby species of willow, as well as the trees, will have most effect when trained to a single stem, if only to the height of 2 or 3 feet. This alone gives them the character of art. All the trailing sorts, such as *S.* herbàcea, *S.* reticulàta, &c., to be truly gardenesque, ought to be grafted standard high for the same reason. For picturesque decoration in artificial scenery, all the upright shrubby and tree willows may be scattered or grouped along the margin of water ; and all the creeping or trailing kinds placed on rockwork, and left to take their natural shapes. Such species of willow as *S.* pentándra, *S.* lùcida, and one or two others, from having little of the aspect common to the willow family, and, consequently, their forms not being associated with the idea of moist soil or water, may be placed near a house, or in a shrubbery or flower-garden, on account of their fragrance and early blossoms; but this cannot be recommended with respect to willows in general, which, whether as shrubs or trees, always convey the idea of the vicinity of water or of marshy ground.

The great master in the genus *S*àlix, considered in a botanical point of view, is Professor Koch ; but, in the present state of our knowledge of this genus in Britain, we have deemed it best to follow Mr. Borrer, whose groups have been adopted by Sir W. J. Hooker, and almost all other British botanists. Those who wish to study Koch's arrangement will find it given at length in the *Arb. Brit.*, 1st edit., p. 1486. and 1633., in which is also given the arrangement of Hooker. Our descriptions in this abridgement are necessarily exceedingly brief, and we must, therefore, refer the reader who wishes to enter into the subject at length to our 1st edition, in which p. 1453. to p. 1636. are occupied with the genus *S*àlix. In the present edition, through the kindness of Mr. Borrer, we have indicated the principal species which represent each group, immediately after the characteristic feature of that group.

## Group i. *Purpùreæ* Koch, Borrer.

Monândræ is the name adopted for this group in *Hook. Br. Fl.*, ed. 3. ; but Mr. Borrer considers Purpùreæ preferable, because it is taken, like the name of each of the other groups in this arrangement, from the name of a species included in that group. Purpùreæ, too, is the name given by Koch to the same group.

*Osier Willows, with one Stamen in a Flower.* The principal species. according to Mr. Borrer, are 1. 4. and 6.

Filament 1, bearing an anther of 4 lobes and 4 cells ; or, in *S.* rùbra, forked, and each branch bearing an anther of 2 lobes and 2 cells. Germen sessile. Catkins very compact. — Trees of low stature, or shrubs with twiggy branches, and leaves that are more or less lanceolate, and serrated, and often broader upwards. Interior part of the bark, in most, yellow, and very bitter (*Hook. Br. Fl.*) The leaves of nearly all of the kinds of this group turn black in drying. The inner bark of most of the kinds included in this group is extremely bitter, which renders the plants suitable for banks of rivers, and other places which are infested by rats, as the bitterness prevents these animals from eating it.

### ✠ 1. *S.* PURPU'REA *L.* The purple Willow.

*Identification.* Lin. Sp. Pl., 1444. ; Eng. Fl., 4. p. 187. ; Hook. Br. Fl., ed. 3., p. 417.
*The Sexes.* Both sexes are figured in *Eng. Bot.*, and are in cultivation in some English collections.
*Synonyme.* *S.* purpùrea *Koch Comm.* p. 25.
*Engravings.* Eng. Bot., t. 1318. ; Hayne Abbild., t. 169. ; our *fig.* 1433. ; and *fig* 1. in p. 791.

*Spec. Char., &c.* Branches trailing, decumbent. Leaves partly opposite, obovate-lanceolate, serrated, very smooth, narrow at the base. Stamen 1. Stigmas very short, ovate, nearly sessile. (*Smith.*) A shrub. Britain. Height 3 ft. to 4 ft. in a wild state; 5 ft. in cultivation. Flowers yellow; March and April; earlier than the foliage.

*Varieties.* Koch, in his *De Salicibus Europæis Commentatio*, has described six; but he includes the *S.* hèlix and Lamberti*àna* (to be described as species below) as two of them. See *Arb. Brit.*, 1st edit.

Branches of a rich and shining purple, with a somewhat glaucous hue, and much esteemed for the finer sorts of basketwork.

1433. *S.* purpùrea.

### ♃ ♅ 2. *S.* HE`LIX *L.* The Helix, *or Rose*, Willow.

*Identification.* Lin. Sp. Pl., 1444.; Eng. Fl., 4. p. 188.; Hook. Br. Fl., ed. 3., p. 417.
*Synonymes.* *S.* purpùrea var. *Koch Comm.* p. 25.; ? *S.* oppositifòlia *Host Sal. Austr.* 1. p. 11. t. 38, 39.
*The Sexes.* Both sexes are figured in *Sal. Wob.*, and also in *Eng. Bot.*; but Mr. Borrer believes that the catkins of female flowers represented in the latter are those of *S.* Forby*àna*: if those of hèlix, they are much too thick. Mr. Borrer having only seen the male of *S.* hèlix, and the female of *S.* Lamberti*àna*, is inclined to regard them as the two sexes of one species.
*Engravings.* Eng. Bot., t. 1343., the male plant; Hayne Abbild., t. 170.; and *fig.* 2. in p. 791

*Spec. Char., &c.*, Branches erect. Leaves partly opposite, oblong-lanceolate, pointed, slightly serrated, very smooth; linear towards the base. Stamen 1. Style nearly as long as the linear divided stigmas. (*Smith.*) A low, upright, deciduous tree. Britain. Height 10 ft. to 12 ft. Flowers yellow; March and April.

Branches smooth, polished, of a pale yellowish or purplish ash colour, tough, and pliable; less slender and elongated than those of *S.* purpùrea, though useful for the coarser sorts of basketwork. The branches, which are yellow, and the mode of growth, which is erect, render this species easily distinguishable from the preceding. The name rose-willow relates to rose-like expansions at the ends of the branches, which are caused by the deposition of the egg of a cynips in the summits of the twigs, in consequence of which they shoot out into numerous leaves, totally different in shape from the other leaves of the tree, and arranged not much unlike those composing the flower of a rose, adhering to the stem even after the others fall off: on this account this is a very desirable species.

### ♃ 3. *S.* LAMBERTI*A`NA* Smith. Lambert's, *or the Boyton*, Willow.

*Identification.* Smith Eng. Fl., 4. p. 190.; Hook. Br. Fl., ed. 3. p. 417.
*Synonyme.* *S* purpùrea β *Koch Comm.* p. 25.
*The Sexes.* Both are figured in *Eng. Bot.* and *Sal. Wob.* Mr. Borrer has only seen the female of this, and the male of *S.* hèlix, and thinks they are the two sexes of one species.
*Engravings.* Eng. Bot., t. 1359.; Sal. Wob., No. 3.; and *fig.* 3. in p. 791.

*Spec. Char., &c.* Branches erect. Leaves partly opposite, obovate-lanceolate, pointed, serrated, smooth; rounded at the base. Stipules none. Stamen 1. Stigmas ovate, obtuse, notched, very short, nearly sessile. (*Smith.*) A low tree, of the size and habit of *S.* hèlix, but very distinct from it at first sight, particularly in the tender summits of the young growing branches, which, with their purplish glaucous hue, and some degree of downiness, resemble those of a honeysuckle.

### ♃ 4. *S.* WOOLLGARI*A`NA* Borr. Woollgar's Willow.

*Identification.* Borr. in Eng. Bot. Supp., t. 2651.; Hook. Brit. Fl., ed. 3., p. 417.
*Synonymes.* *S.* monándra *Sal. Wob.* No. 4.; *S.* monándra var. *Hoffm. Hist. Sal.* 1. p. 21. t. 1. f. 1.
*The Sexes.* The female is figured in *Eng. Bot. Supp.*, and both sexes in *Sal. Wob.*; yet Mr. Borrer, in his elucidation of this kind, published in *Eng. Bot. Supp.*, subsequently to the publication of *Sal. Wob.*, remarks that he is unacquainted with the male flowers.
*Engravings.* Sal. Wob., No. 4.; Eng. Bot. Supp., t. 2651.; and *fig.* 4. in p. 791.

*Spec. Char., &c.* Erect. Leaves cuneate-lanceolate, serrated, glabrous. Sta-

men 1. Ovary ovate, very pubescent, sessile, downy. Stigmas nearly sessile, ovate, scarcely emarginate. (*Hook.*) An erect bush. Height 6 ft. to 8 ft. England, about Lewes, Sussex, in hosier holts, but scarcely wild; at Kingston upon Thames, apparently wild. Flowers yellow; May.

A very beautiful species.

5. *S.* FORBYA'NA Smith. Forby's Willow, *or the fine Basket Osier.*

*Identification.* Smith Eng. Fl., 4. p. 191.; Hook. Br. Fl., ed. 3., p. 418.
*Synonymes.* *S.* fissa *Lin. Soc. Trans.*, not of Hoff. (*Smith*); *S.* rùbra *β Koch Comm.* p. 27.
*The Sexes.* The female is described in *Eng. Fl.*, and figured in *Eng. Bot.* The male is not known.
*Engravings.* Eng. Bot., t. 1344.; Sal. Wob., No. 5.; N. Abbild., t. 172.; and *fig.* 5. in p. 791.

*Spec. Char., &c.* Branches erect. Leaves alternate, with small stipules, lanceolate-oblong, with shallow serratures, smooth, rounded at the base, glaucous beneath. Stamen 1. Style nearly as long as the linear divided stigmas. (*Smith.*) An erect deciduous shrub. England. Height 5 ft. to 8 ft. Flowers yellow; April.

The shoots are slender, smooth, very flexible, and tough; of a greyish yellow, not purple, hue; and very valuable for the finer sorts of wickerwork, for basket-making, and for bands for tying faggots and packets.

6. *S.* RU'BRA *Huds.* The red, *or green-leaved*, Willow, *or Osier.*

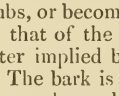
*Identification.* Huds. Fl. Angl., p. 428.; Smith's Eng. Fl., 4. p. 191.; Hook. Br. Fl., ed. 3., p. 418.
*Synonymes.* The name rùbra seems to be originally given to *S.* vitellìna, a reddish [? twigged] variety of which was confounded with *S.* rùbra *Huds.*, *S.* lineàris *Walker's Essays* p. 467., on the authority of Borrer.
*The Sexes.* Both are described in *Eng. Fl.*; and the female is figured in *Eng. Bot.* and *Sal. Wob.*
*Engravings.* Eng. Bot., t. 1145.; Sal. Wob., No. 6., and our *fig.* 6. in p. 792.

*Spec. Char., &c.* Stamens combined below in a manner which affords a character in which it differs from all other British kinds of willow, except *S.* Croweàna, and from nearly all the foreign kinds. Mr. Borrer, however, has observed the same thing occasionally in *S.* fúsca, and in several of the Cinèreæ. "Leaves linear-lanceolate, elongate, acute, smooth, with shallow serratures; green on both sides. Stigmas ovate, undivided." (*Smith.*) A large shrub or low tree. England, in low meadows and osier holts, as at Maidenhead, &c., but rare; in Scotland, frequent in hedges and osier grounds. Height 10 ft. to 20 ft. Flowers yellow; May and April.

One of the most valuable osiers in cultivation, for hands, crates, basketwork or wickerwork, and even small hoops.

## Group ii. *Acutifòliæ* Borrer. (*Syn.* Pruinòsæ *Koch.*)

*Willows with dark Bark, covered with a fine Bloom.* Principal species, 7, 8.



Stamens 2, distinct. — Tall shrubs, or becoming trees. Bark of the branches and shoots of a dark colour; that of the branches suffused with a whitish matter, which is the character implied by Koch's term Pruinòsæ. This matter is easily rubbed off. The bark is internally yellow, as in Group i. Foliage of a lively green. Leaves lanceolate, acuminately pointed, serrate, glossy; in many instances, downy when young, subsequently glabrous. Ovary and capsule sessile, or nearly so.

7. *S.* ACUTIFO'LIA *Willd.* The pointed-leaved Willow.

*Identification.* Willd. Sp. Pl., 4. p. 668.; Koch Comm., p. 22.
*Synonyme.* *S.* violàcea *Andr. Bot. Rep.* t. 581.; but not *S.* violàcea *Willd.*, nor the *S.* cáspica *Hort.* (*Willd.*)
*The Sexes.* The male is figured in *Sal. Wob.*, and is, perhaps, the only one cultivated in British collections. Koch has implied that the female was unknown to him in any state.
*Engravings.* Andr. Bot. Rep., 581.; Sal. Wob., No. 25.; and our *fig.* 25. in p. 791.

*Spec. Char., &c.* Leaves linear-lanceolate, acuminated, smooth, with blunt unequal serratures, glaucous beneath. Catkins of the male about 1 in. long. (*Willd.*) A small tree. Podolia. Height 10 ft. to 15 ft. Introduced

previously to 1810. Flowers yellow ; March and April, before the expansion of the leaves.

Branches dark violet-coloured, slender, upright, and covered all over with a whitish powder, like the bloom of a plum. A very beautiful species.

### ♆ 8. *S.* DAPHNÖI`DES *Villars.* The Daphne-like Willow.

*Identification.* Vill. Dauph., 3. p. 765. ; Koch Comm., p. 23.
*Synonymes.* *S.* præ`cox *Hoppe* in *Sturm D. Fl.* 1. 25. ; *S.* bigémmis *Hoffm. Germ.* 2. p. 260. ; *S.* cinèrea *Host Sal. Austr.* 1. p. 8. t. 26, 27. Mr. Borrer, in a letter, has remarked that Smith has erroneously cited, in his *Flora Brit.*, *S.* daphnöìdes *Villars* as a synonyme of *S.* cinèrea *Smith* ; and that this has led Koch to cite *S.* cinèrea *Smith* as a synonyme of *S.* daphnöìdes *Villars.*
*The Sexes.* Both sexes are figured in *Sal. Wob.*, and in *Host Sal. Austr.*
*Engravings.* Vill. Dauph., 3. t. 50. f. 7. ? or 3. t. 5. f. 2. ; Host Sal. Aust., 1. t. 26, 27. ; our *fig.* 1434. in p. 750. ; and *fig.* 26. in p. 796.

*Spec. Char., &c.* Leaves broadly lanceolate, and pointed, with glandular serratures, smooth, glaucous beneath. Catkins appearing before the leaves. Ovary sessile, ovate, smooth. Style elongated. (*Vill.*) A rapid-growing tree, with dark greyish branches, slightly covered with a powder, or bloom, similar to that of *S.* acutifòlia ; the branches ascending obliquely. Switzerland and the South of France. Height 25 ft. to 30 ft. Introduced in 1820. Flowers yellow, from large crimson buds in February.

A very ornamental species, as appears by the engraving in the following page.

### ♆ 9. *S.* POMERA'NICA *Willd.* The Pomeranian Willow.

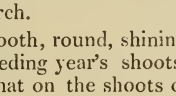
*Identification.* Willd. Enum. Supp., 66. ; Forbes in Sal. Wob., No. 153.
*Synonyme.* *S.* daphnöìdes *Villars*, var. with narrower leaves, and more slender catkins. (*Koch Comm.* p. 23.) Mr. Borrer, in his manuscript list of grouped species, has indicated it as being probably a variety of *S.* daphnöìdes.
*The Sexes.* The female is described in *Sal. Wob.*

*Spec. Char., &c.* Leaves lanceolate, tapering at both extremities, serrated ; smooth and shining above, glaucous underneath. Stipules ovate, serrated ; their margins generally revolute. Catkins about 1 in. long. Ovary ovate, smooth. Style longer than the parted stigmas. (*Willd.*) A rapid-growing tree. Pomerania. Height 20 ft. to 30 ft. Introduced in 1822. Flowers yellow ; February and March.

The branches are long, smooth, round, shining, and copiously covered with small yellow dots : the preceding year's shoots are covered with a violet-coloured powder, similar to that on the shoots of *S.* acutifòlia.

## Group iii. *Triándræ* Borrer. (*Syn. Amygdálinæ Koch.*)

*Osier Willows, with three Stamens in a Flower.* Prin. sp. 14, 15.

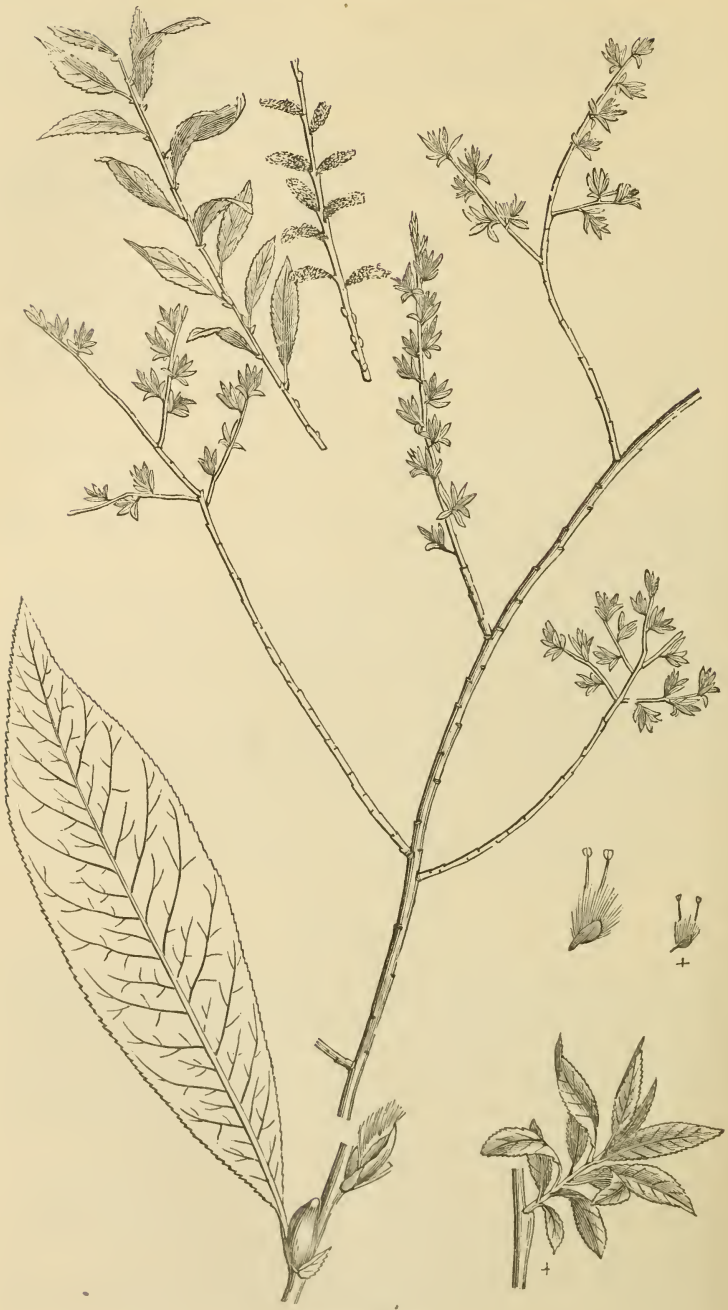


Stamens 3 Leaves lanceolate, approaching to ovate, serrated, glabrous, having large, rounded, toothed, more or less deciduous, stipules. Flowers loosely disposed in the catkin. Pistil stalked. Ovary mostly glabrous. — Most of the kinds constitute excellent osiers, and become trees if left to themselves. (*Hook.*) The kinds may be denominated, generally, the osiers with 3 stamens in a flower. Most, or all, when in the state of larger shrubs and trees, have their older bark exfoliated in broad patches, as in *P*látanus occidentàlis *L.* and *P.* orientàlis *L.* Most, or all, are ornamental as shrubs, for their lanceolate, glossy, serrated leaves, and their flowers.

### ♆ 10. *S.* UNDULA`TA *Koch, Hooker.* The wavy-*leaved* Willow.

*Identification.* Koch Comm., p. 20 ; Hook. Fl. Br., ed. 3., p. 419. ; ? Hayne Abbild., p. 220.
*Synonymes.* Koch has cited as identical with, or included in, *S.* undulàta, the following kinds :— *S.* undulàta *Ehrh.* ; *S.* lanceolàta *Smith.*
*The Sexes.* The female is figured in *Eng. Bot.*, t. 1436. ; and is described in *Eng. Fl.*
*Engravings.* Eng. Bot., t. 1436. ; our *fig.* 1435. ; and *figs.* 13. and 14. in p. 793.

*Spec. Char., &c.* Leaves lanceolate, acuminate through much of their length, serrulate at the tip, and minutely crenulate at the base ; at first



1454. S. daphnoïdes.

pubescent, but becoming glabrous; wavy at the edge, or not. Stipules half-heart-shaped. Catkin peduncled upon a leafy twiglet. Bractea bearded at the tip. Stamens 3. Capsule ovate-conical, more or less pubescent or glabrous, stalked; the stalk twice the length of the gland. Style elongated. Stigmas bifid. (*Koch.*) A bushy tree. Germany and England, on the banks of streams. Height 12 ft. to 15 ft. Flowers yellow; April and May.

1435. *S.* undulàta.

*Varieties.*

♆ ♣ S. *u.* 2. *S.* undulàta *Forbes* in *Sal. Wob.* No. 13.

♆ ♣ S. *u.* 3. *S.* lanceolàta *Smith Eng. Bot.* t. 1436., *Eng. Fl.* i. v. p. 168., *Forbes* in *Sal. Wob.* No. 14.

♆ ♣ S. *u.* having the catkins androgynous.—*S.* undulàta occurs in this case. (*Koch Comm.* p. 20.)

♣ 11. *S.* HIPPOPHAEFO'LIA *Thuillier.* The Sea-Buckthorn-leaved Willow, *or Osier*, described in our 1st edit., does not appear to be introduced.

♣ ♆ 12. *S.* TRIA'NDRA *L.* The 3-stamened-*flowered* Willow, *or Osier.*

1436. *S.* triándra.

*Identification.* Lin. Sp. Pl., 1442.; Eng. Fl., 4. p. 166.; Hook. Fl. Br., ed. 3., p. 419.
*Synonyme.* *S.* amygdálina, part of, *Koch Comm.* p. 19.
*The Sexes.* Both sexes are figured in *Eng. Bot.* and *Sal. Wob.*
*Engravings.* Eng. Bot., t. 1435.; Sal. Wob., No. 15.; our *fig.* 1436.; and *fig.* 15. in p. 793.

*Spec. Char., &c.* Leaves linear-oblong, serrated, glabrous, rather unequally sloping at the base. Stamens 3. Ovary stalked, ovate, compressed, glabrous. Stigmas nearly sessile. Bractea (or scale) clothed externally with fine, long, spreading, more or less plentiful hairs. Bractea glabrous. (*Hook.* and *Smith.*) An upright tree. Britain, in wet woods and osier grounds. Height 20 ft. to 30 ft. Flowers yellow; May.

Leaves always perfectly glabrous. Extensively cultivated for the long tough rods which it produces when cut down, which are in frequent use for wickerwork, hoops, &c.

*Varieties.*

♣ ♆ S. *t.* 2 *gállica.* The French Willow.—So called, and cultivated, in Sussex, and the eastern parts of England.

♣ ♆ S. *t.* 3 *Hoppe*àna. *S.* andrógyna *Hoppe.*—Characterised by having some catkins composed partly of male and partly of female flowers.

♣ ♆ S. *t.* 4. *S.* triándra undulàta *Mertens, ined.*—Approaches to *S.* amygdálina.

♣ ♆ 13. S. HOFFMANN*IA'NA* Smith. Hoffmann's Willow, *or Osier.*

*Identification.* Smith Eng. Fl., 4. p. 168.; Hook. Br. Fl., ed. 3., p. 420.
*Synonyme.* *S.* triándra *Hoffm.*, *S.* Hoffmanni*àna* Sm., seems to be the *S.* triándra of German botanists in general.
*The Sexes.* The male is figured in *Eng. Bot. Suppl.* and in *Sal. Wob.*; a notice relative to what has been regarded as the female is given in *Eng. Flora.*
*Engravings.* Hoff. Sal., 1. t. 9, 10., and 23. f. 2.; Eng. Bot. Suppl., t. 2620.; and *fig.* 16. in p. 794.

*Spec. Char., &c.* Leaves ovate-oblong, serrated, smooth, slightly rounded at the base. Stamens 3. Ovary stalked, ovate, compressed, glabrous. Stigmas nearly sessile. (*Smith.*) A much-branched deciduous shrub, or crooked tree. Britain, in Sussex, on the sides of streams. Height 6 ft. to 12 ft. Flowers yellow; May.

♆ 14. *S.* AMYGDA'LINA *L.* The Almond-*leaved* Willow, *or Osier.*

*Identification.* Lin. Sp. Pl., 1443.; Eng. Fl., 4. p. 169.; Hook. Br. Fl., ed. 3., p. 420.
*Synonyme.* *S.* amygdálina, part of, *Koch Comm.* p. 18.
*The Sexes.* Both sexes are figured in *Eng. Bot.* and *Sal. Wob.*
*Engravings.* Eng. Bot., t. 1636.; Sal. Wob., No. 18.; our *fig.* 1437.; and *fig.* 18. in p. 794.

*Spec. Char., &c.* Leaves ovate, serrated, glabrous, rounded, and unequal at the base. Stamens 3. Ovary ovate, compressed, smooth; its stalks almost as long as the bractea. Stigmas nearly sessile. Young branches furrowed. Down of the seeds shorter, and less abundant, than in *S.* triándra. A tree. Britain, on the banks of rivers and ditches. Height 20 ft. to 30 ft. Flowers yellow; April and May, and, for the second time, in August.

♆ 15. *S.* VILLARS*IA'NA* Flügge et Willd. Villars's Willow, *or Osier.*

*Identification.* Flügge in Litt., quoted in Willd. Sp. Pl., 4. p. 655.; Smith in Rees's Cycl., No. 63.
*Synonymes.* *S.* triándra *Villars Delph.* 3. p. 762.; *S.* amygdálina var. *Koch Comm.* p. 19.
*The Sexes.* Both sexes are described by Willd.; and the male is figured in *Sal. Wob.*
*Engravings.* Sal. Wob., No. 17.; and *fig.* 17. in p. 794.

*Spec. Char., &c.* Leaves elliptical, rounded at the base, pointed at the tip, serrated, whitely glaucous beneath. Catkins appearing with the leaves. Flowers triandrous. Ovary pedicellated, ovate, smooth. Stigmas sessile. (*Willd.*) A shrub, with dark violet-coloured, shining branches. Dauphiné. Introduced in 1818. Height 5 ft. to 14 ft. Flowers yellow; April.

Ornamental from its abundant blossoms in early spring, and from its remarkably neat serrated leaves. (See *fig.* 17. in p. 794.)

1437. S. amygdálina.

## Group iv. *Pentándræ* Borrer.

*Trees having Flowers with* 3—5 *Stamens.* Prin. sp. 16, 17, and 18.

Stamens in a flower more than 3, in most instances 5. Ovary glabrous. — The plants trees of moderate size. Leaves large, glossy, fragrant, serrated, and having glands in the serratures, from which a resin exudes. Stamens in each catkin so numerous and long, as to render the flowers, which, too, are in perfection at the same time as the foliage, quite handsome, and the trees, in this condition, more ornamental than those of any other group. (*Hook.*)

### ♈ 16. *S.* PENTA'NDRA *L.* The five-stamened-*flowered* Willow.

*Identification.* Lin. Sp. Pl., 1442.; Eng. Fl., 4. p. 171.; Hook. Br. Fl., ed. 3., p. 420.
*Synonymes.* *S.* pentándra, part of, *Koch Comm.* p. 13.; the sweet Willow, or Bay-leaved Willow.
*The Sexes.* Both sexes are figured in *Sal Wob.* and Hayne's *Abbild.*, and the male in *Eng Bot.*, with two views of an ovary.
*Engravings.* Eng. Bot., t. 1805.; Host Austr., l. t. I. f. 2.; our *fig.* 1438.; and *fig.* 34. in p. 798.

*Spec. Char., &c.* Leaves ovate, pointed, crenate, glandular, glabrous. Footstalks glandular at the summit. Stamens 5 or more, hairy at the base. Ovary ovate, tapering, smooth, nearly sessile. (*Sal. Wob.*) An upright tree. Britain, on the banks of rivers and in watery places. Height 18 ft. to 20 ft. Flowers yellow; June.

The flowers are remarkably fragrant, as are the leaves, especially when bruised: the fragrance, which is similar to that of the sweet bay (*Laúrus nóbilis*), but less powerful, is exuded from the resinous crenatures of the leaves, and from the barren catkins. It is one of the most desirable species of the genus for planting in pleasure-grounds, on account of the fine display made by the blossoms, their profusion, their abundant fragrance, the smooth, shining, rich deep green of the leaves, and the comparatively slow growth and compact habit of the tree.

1438. *S.* pentándra.

*Variety.*

♈ S. *p.* 2 *hermaphrodítica.* — Catkins more or less hermaphrodite.

### ♈ 17. *S.* MEYERIA'NA Willd. Meyer's Willow.

*Identification.* Willd. Berl. Baumz., p. 427.; Hook. Br. Fl., ed. 3, p. 421.
*Synonymes.* *S.* cuspidàta *Schultz*; *S.* tinctòria *Smith*; *S.* pentándra *β Linn.*; *S.* hexándra *Ehrh*; *S.* Ehrhartiàna Smith; *S.* tetrándra *Willd.*
*The Sexes.* The male is figured in Hayne's *Abbild.* The female is mentioned in *Koch Comm.*, and Hooker's *Br. Fl.*, ed. 3., p. 421.
*Engravings.* Hayne Abbild., t. 162.; our *fig.* 1439.; and *fig.* 33. in p. 798.

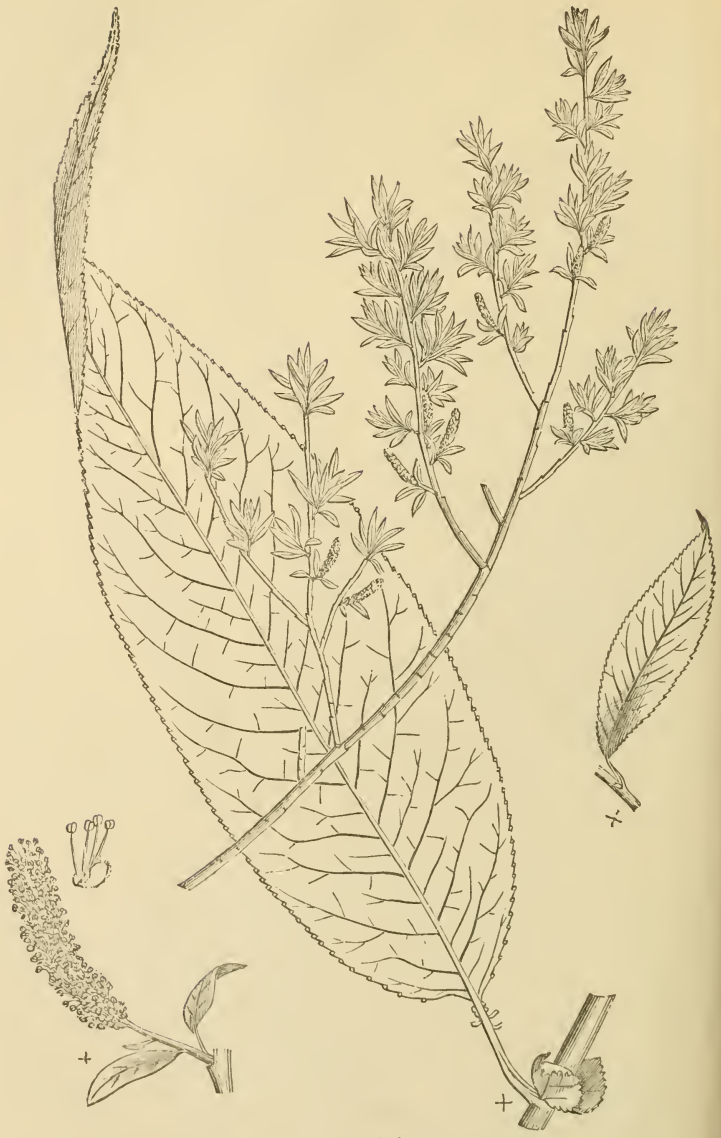
*Spec. Char., &c.* Leaves ovate-elliptic, pointed, glabrous; green and shining above, rather pale beneath but not glaucous; serrated; the serratures of the young leaves glandular. Stipules soon falling off. Stamens 3—4. Bractea obtuse, yellow. (*Willd.*) A handsome tree, with brownish smooth branches, and large broad shining leaves. Pomerania and Sweden, in meadows, and woody and marshy places. Height 20 ft. to 30 ft. Introduced in 1822. Flowers yellow; April.

Mr. Borrer states that the insertion of this kind in *Hook. Br. Fl.*, ed. 3., as a native of Britain, arose from a mistake of his. (See Borrer in *Comp. to Bot. Mag.*, p. 225.)

### ♈ 18. *S.* LU'CIDA *Mühlenb.* The shining-*leaved* Willow.

*Identification.* Mühlenb. Nov. Act. Soc. Nat. Scrut. Berol., 4. p. 239. t. 6. f. 7.; Pursh Fl. Amer. Sept., 2. p. 615.; Michx North Amer. Sylva, 3. p. 81.
*Synonyme.* *S.* Forbèsii Sweet Hort. Brit. ed. 1830.

1439. S. Meyerbina.



1440. S. lucida.

*The Sexes.* The male is figured in *Sal. Wob.*, and noticed in our specific character.
*Engravings.* Nov. Act. Soc. Nat. Scrut. Berol., 4. t. 6. f. 7.; Michx. North Amer. Sylva, 3. t. 125. f. 3.; our *fig.* 1440.; and *fig.* 32. in p. 798.

*Spec. Char., &c.* Leaves ovate, acuminate, serrated, glabrous; shining above, pale beneath; the serratures resinous. Footstalks glandular. Stipules large, half-heart-shaped, serrated, and furnished with glands. Catkins of the male 1½ in. long, or more. Stamens 3—5, bearded at the base. (*Sal.*

*Wob.*) A handsome low-growing tree, with the branches of the preceding year of a greyish green colour and smooth, and the young twigs of a yellowish green, somewhat striated or angular at the points. Switzerland, and, perhaps, North America. Introduced in 1812. Height 20 ft. to 30 ft. Flowers yellow; April and May.

## Group v. *Frágiles* Borrer.

*Trees, with their Twigs mostly brittle at the Joints.* Prin. sp. 19. 22. and 24.

Stamens 2 to a flower. Ovary glabrous, elongated, seated upon a more or less obvious stalk. Flowers very loosely disposed in the catkin. Leaves lanceolate, serrated, glabrous, stipuled. The plants, trees of considerable size. (*Hook. Br. Fl.*, ed. 2., adapted.)

♃ 19. *S.* BABYLO'NICA. The Babylonian, *or weeping*, Willow.

*Identification.* Lin. Sp. Pl., 1443; Smith in Rees's Cyclo., No. 42.; Koch Comm., p. 17.
*Synonymes.* *S.* propéndens *Sering. Sal. Hel.* p. 73.; *S.* orientàlis, &c., *Tourn.*; *S.* arábica, &c., *C. Bauh.*; Saule pleureur, Parasol du grand Seigneur, *Fr.*; Trauer Weide, Thränen Weide, *Ger.*
*The Sexes.* The female is figured in *Sal. Wob.*; the male is not known, in a living state, in Britain; unless it be *S.* b. Napoleòna, as suggested in p. 758.
*Engravings.* Rauw. It., 25. 183.; our *fig.* 22. in p. 795.; the plates of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1441.

1441. *S.* babylónica.

*Spec. Char., &c.* Leaves lanceolate, acuminate, finely serrated, glabrous; glaucous beneath. Catkins protruded at the same time as the leaves. Ovary ovate, sessile, glabrous. (*Willd.*) A pendulous-branched tree. Asia, on the banks of the Euphrates, near Babylon, whence its name; and also

of China, and other parts of Asia; and of Egypt, and other parts of the North of Africa. Height 39 ft. to 50 ft. Introduced in 1730, or, perhaps, 1692. Flowers greenish yellow; May.

*Varieties.* There is one very decided variety, commonly treated as a species under the name of *S.* annulàris; and Mr. Castles of the Twickenham Botanic Garden is of opinion that, exclusive of this variety, there are two forms of the species in the country, one of which he thinks may possibly be the male plant. This form, as it appears to be the same as the plant sent from St. Helena, we shall, till something further has been decided respecting it, call *S.* b. Napoleòn*a*. The varieties will, therefore, stand as under: —

ϒ S. *b.* 1 *vulgàris fœm.* Hort. — Young shoots pale green, slender, with an angular twist above the axil of each leaf, and large stipules. It is the most common weeping willow in the neighbourhood of London, and flowers in June.

ϒ S. *b.* 2 *Napoleòn*a *Hort.* — Shoots round, generally reddish, and the leaves without stipules. Sex female. Probably nothing more than the common variety. Introduced from St. Helena in ? 1823.

ϒ S. *b.* 3 *críspa* Hort. *S.* annulàris *Forbes* in *Sal. Wob.* No. 21.,

1442. *S.* b. críspa.

with a fig. of the female; the Ring-leaved Willow. Our *fig.* 21. in p. 794.; and the plate of this tree in *Arb. Brit.*, 1st edit., vol. vii.; and our *fig.* 1442. — Leaves lanceolate, acuminate, serrated, curled or twisted, glabrous, and glaucous beneath.

A well-known ornamental tree in universal cultivation.

ϒ 20. *S.* DECI'PIENS *Hoffm.* The deceptive, *White Welsh, or varnished*, Willow.

*Identification.* Hoff. Sal., 2. p. 2. t. 31.; Eng. Fl., 4. p. 18[illegible]; Hook. Br. Fl., ed. 3.
*Synonymes.* *S.* americna *Walker Essays on Nat. Hist.*; *S.* frágilis, part of, *Koch Comm.* p. 15.
*The Sexes.* Both sexes are described in *Eng. Fl.*; the male is figured in *Eng. Bot.* and *Sal. Wob.*
*Engravings.* Hoffm. Sal., 2. t. 31.; Eng. Bot., t. 1937.; our *fig.* 1443.; and *fig.* 29. p. 797.

*Spec. Char., &c.* Leaves lanceolate, pointed, serrated, very smooth; floral

ones partly obovate and recurved. Footstalks somewhat glandular. Ovary tapering, stalked, smooth. Style longer than the cloven stigmas. Branches smooth, highly polished. (*Hoffm.*) An upright, but not lofty tree, distinguished by the smooth clay-coloured bark of the last year's branches, which shine like porcelain, as if varnished; the shoots of the present year being stained of a fine red or crimson. Britain. Height 30 ft. to 40 ft. Flowers yellow; May.

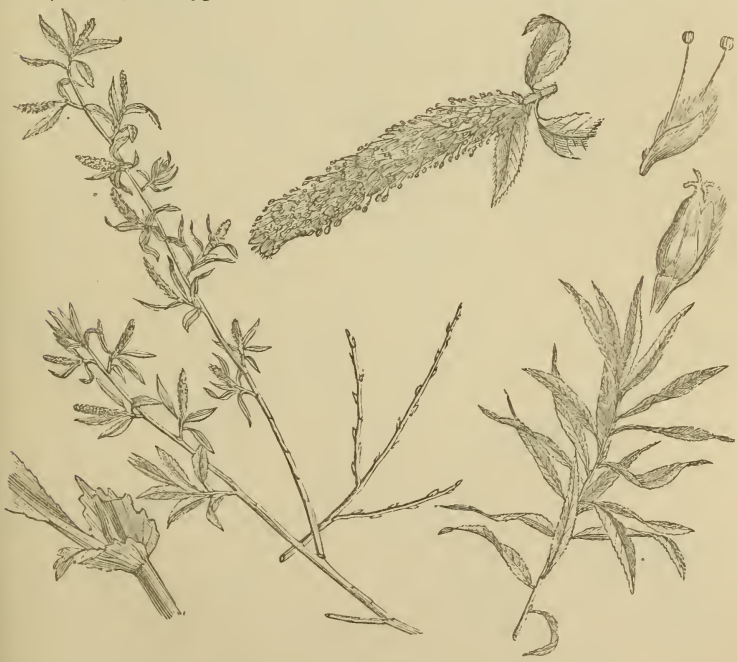
1443. *S.* dec'piens.

Frequently cultivated for basketwork; but it well deserves a place in ornamental plantations, from the remarkable appearance of its bark during winter.

ϒ 21. *S.* MONTA'NA *Forbes*, the Mountain Willow (*fig.* 19. in p. 794.), is described in our first edition, p. 1515.

ϒ 22. *S.* FRA'GILIS *L.* The brittle-*twigged, or Crack*, Willow.

*Identification.* Lin. Sp. Pl., 1443.; Eng. Fl., 4. p. 1804.; Hook. Br. Fl., ed. 3., p. 421.
*Synonyme.* *S.* frágilis, in part, *Koch Comm.* p. 15.
*The Sexes.* Both sexes are figured in *Eng. Bot.* and *Sal. Wob.*
*Engravings.* Lin. Fl. Lapp., No. 349. t. 8. f. *b.*; Eng. Bot., t. 1807.; the plate of this tree in Arb. Brit., 1st edit.; and our *fig.* 1444.



1444. *S.* frágilis.

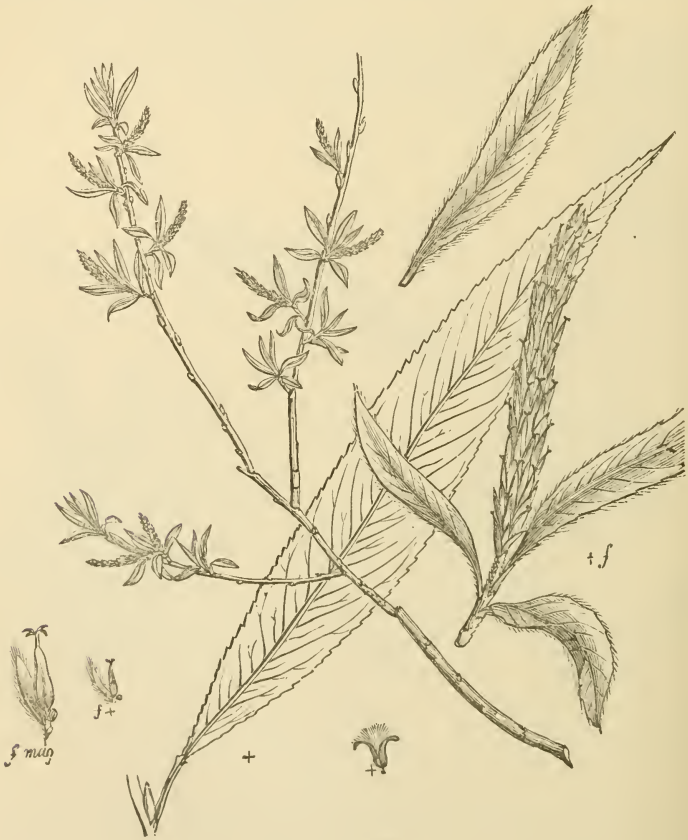
*Spec. Char., &c.*, Leaves ovate-lanceolate, pointed, serrated throughout, very glabrous. Footstalks glandular. Ovary ovate, abrupt, nearly sessile, glabrous. Bracteas oblong, about equal to the stamens and pistils. Stigmas cloven, longer than the style. (*Smith.*) A tall bushy-headed tree, with the branches set on obliquely, somewhat crossing each other, not continued in a straight line outwards from the trunk; by which character, Sir J. E. Smith observes, it may readily be distinguished even in winter. Britain; common in hedges. Height 80 ft. to 90 ft. Flowers yellow; April and May.

The branches are round, very smooth, "and so brittle at the base, in spring, that with the slightest blow they start from the trunk;" whence the name of crack willow: though, according to Sir J. E. Smith, this is more or less the case with *S.* decípiens, and several other species of willows, both native and exotic.

ϒ 23. *S.* MONSPELIE'NSIS *Forbes* (*fig.* 30. in p. 797.), the Montpelier Willow, is described in our 1st edit., p. 1517.

ϒ 24. *S.* RUSSELLI*A'NA* Smith. The Russell, *or Duke of Bedford's*, Willow.

*Identification.* Eng. Fl., 4. p. 186.; Hook. Br. Fl., ed 3., p. 422.
*Synonymes.* ? *S.* frágilis *Woodv.*; the Dishley, or Leicestershire, Willow; in some counties, the Huntingdon Willow. *S.* péndula *Ser.*; *S.* víridis *Fries*; *S.* rùbens *Schrank.*
*The Sexes.* The female is figured in *Eng. Bot.* and *Sal. Wob.* Smith, in the *Eng. Fl.*, states that he had not seen the flowers of the male. Dr. Johnston, in his *Flora of Berwick upon Tweed*, states that a male tree, which he has deemed of this species, is in "New-water-haugh Plantation."
*Engravings.* Eng. Bot., t. 1808.; our *fig.* 1445.; and *fig.* 28. in p. 796.




1445. *S.* Russellii'na.

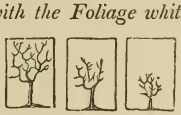
*Spec. Char., &c.* Leaves lanceolate, tapering at each end, serrated throughout, very glabrous. Footstalks glandular or leafy. Ovary tapering, stalked, longer than the bracteas. Style as long as the stigmas. (*Smith.*) A large handsome tree. Britain, in marshy woods. Height 80 ft. to 90 ft. Flowers yellowish; April and May.

The branches are long, straight, and slender, not angular in their insertion like those of *S. frágilis* ; and the trees of both species, when stripped of their leaves, may be distinguished respectively by these marks. The celebrated willow at Lichfield, called Johnson's Willow, of which two portraits are given in our first edition, together with the history of the tree, was of this species.

☤ 25. *S.* PURSHIA'NA Borrer, Pursh's Willow, is described in our first edition, p. 1522.

## Group vi. *A'lbæ* Borrer.

*Trees of the largest Size, with the Foliage whitish.* Prin. sp. 26. and 27.



Stamens 2 to a flower. Ovary glabrous. Flowers loosely disposed in the catkin. Leaves lanceolate, serrated with glanded serratures ; hairy, especially while young, with appressed silky hairs, which give to the foliage a light or whitish hue. — Plants trees of considerable height. (*Hook.*)

☤ 26. *S.* A'LBA *L.* The *whitish-leaved, or common* white, Willow.

*Identification.* Lin. Sp. Pl., 1449.; Eng. Fl., 4. p. 231. ; Hook. Br. Fl., ed. 3.
*Synonymes.* *S.* álba, part of, *Koch Comm.* p. 16. ; the Huntingdon, or Swallow-tailed, Willow.
*The Sexes.* Both are described in *Eng. Fl.*, and both figured in *Eng. Bot.*
*Engravings.* Eng. Bot., t. 2430. ; Host Sal. Aust., 1. t. 32, 33. ; the plates of this tree in Arb. Brit., 1st edit., vol. vii. ; and our *figs.* 1446, 1447.

*Spec. Char., &c.* Leaves elliptic-lanceolate, pointed, serrated, silky on both sides ; the lowest serratures glandular. Stamens hairy. Germen smooth, almost sessile. Stigmas deeply cloven. Scales notched. (*Smith.*) A large tree. Norway and Sweden, to the Mediterranean Sea ; North-East and West of Asia ; and introduced into the United States. Frequent in Britain, and also in Ireland. Height 50 ft. to 80 ft. Flowers yellow; May.

*Varieties.*

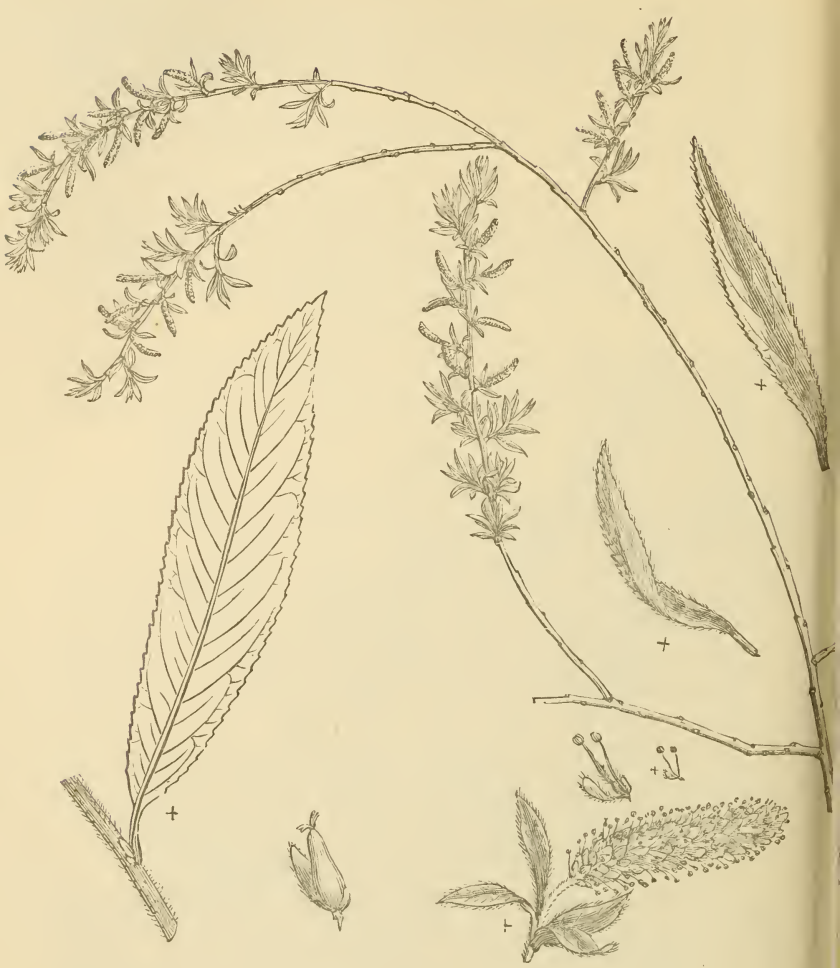
☤ S. *a.* 2 *cærùlea.* *S.* álba var. *Smith Fl. Brit.* p. 1072. ; *S.* cærùlea *Smith Eng. Bot.* t. 2431. ; *S.* álba β *Smith Eng. Fl.* iv. p. 231. ; the upland, or red-tinged, Willow, *Pontey Profit. Planter*, 4th ed., 1814, p. 72. ; the Leicester Willow, *Davy's Agricultural Chemistry*, 1st ed. ; Blue Willow, *Smith* ; and our *fig.* 137. in p. 817.

☤ S. *a.* 3 *críspa* Hort. — Leaves narrow, contorted and silky.

☤ S. *a.* 4 *ròsea* Lodd. Cat. ed. 1836. — Aspect reddish.

In the North of Europe, the bark of this tree is used for tanning leather, and for dyeing yarn of a cinnamon colour ; and the leaves and young shoots are given to cattle in a green state, or dried like the twigs of the birch, and laid up for winter fodder. The inner bark, like that of Scotch pine, being kiln-dried, and ground into a fine flour, is mixed with oatmeal, and made into bread, in seasons of great scarcity, by the inhabitants of Norway and Kamtschatka. The branches of the tree are used as stakes, poles, handles to rakes, hoes, and other implements, and as faggot-wood for fuel. The timber of the trunk is used for various purposes. It weighs, in a green state, 70 lb. 9 oz. per cubic foot ; half-dry, 51 lb. 14 oz. ; and quite dry, 32 lb. 12 oz. ; so as to lose more than one half of its weight by drying, during which it loses a sixteenth part of its bulk. It is found an excellent lining for stone-carts, barrows, &c. It is used in turnery, millwork, coopery, weather-boarding, &c. ; and the stronger shoots and poles serve for making hoops, handles to hay-rakes, clothes-props (see fig. 169. *Encyc. of Cott. Arch.*), and various other instruments and implements ; and the twigs are employed in wicker-work. The bark, which is thick and full of cracks, is in nearly as great repute

1446. *S.* álba.



1447. Sàlix álba.

for tanning as that of the oak; and it is also used in medicine, in the cure of agues, as a substitute for cinchona; though it is inferior for both purposes to that of *S.* Russell*iàna*. As fuel, the wood of this tree is to that of the beech as 808 is to 1540; but the old bark makes a very useful fuel; and both it and the wood will burn when green, in which state the wood is said to give out most heat. The charcoal is excellent for use in the manufacture of gunpowder, and for crayons. The ashes are very rich in alkali, containing more than a tenth part of their weight of that salt. In France, a fine blood-red colour is obtained from the bark; and that of the young tree is used in the preparation of leather for making gloves.

It is justly remarked by Mr. Gorrie, that it adds much to the value of the *S*àlix álba, that its propagation and culture are of the most simple description, and that it will grow luxuriantly in most soils where other trees make but slow progress. According to Sang, it will thrive well in high and dry

grounds; and, if planted in the grove manner, in tolerably good soil, perhaps no other plantation, except larches, would give so quick a return for the trouble and expense of planting.

♃ 27. *S.* VITELLI'NA *L.* The yolk-of-egg-coloured, *or yellow*, Willow, *or Golden Osier.*

*Identification.* Lin. Sp. Pl., 1442.; Eng. Fl., 4. p. 182.; Hook. Br. Fl., ed. 3., p. 423.
*Synonyme.* *S.* álba *Koch Comm.* p. 16.
*The Sexes.* Both sexes are figured in *Eng. Bot.*, *Sal. Wob.*, and *Host Sal. Aust.*
*Engravings.* Hoffm. Sal., t. 11, 12. and 24. f. 1.; Host. Sal. Aust., t. 30, 31.; Eng. Bot., t. 1389.; the plate of this tree in Arb. Brit., 1st edit.; Sal. Wob., No. 20.; and *fig.* 20. in p. 784.

*Spec. Char., &c.* Leaves lanceolate, acute, with cartilaginous serratures; glabrous above; glaucous and somewhat silky beneath. Stipules minute, lanceolate, deciduous, smooth. Ovary sessile, ovate-lanceolate, smooth. Bracteas linear-lanceolate, acute, fringed at the base, longer than the pistil. (*Smith.*) A large tree. Britain, in hedges, and cultivated in osier grounds in many places; and readily distinguished from all the other sorts, by the bright yellow colour of its branches. Height 30 ft. to 50 ft. Flowers yellow; May.

As an ornamental tree, Sàlix vitellìna is very striking in the winter season, especially among evergreens. As a shrub, it is not less so, both among evergreen shrubs and deciduous kinds, having the bark of conspicuous colours. In the English garden at Munich, extensive masses of this willow are placed in contrast with masses of the white-barked honeysuckle (Lonícera Xylósteum), the red-barked dogwood (Córnus álba), and the brown-barked spiræa (Spiræ'a opulifòlia).

## Group vii. *Nìgræ.*

*Extra-European Kinds allied to the Kinds of one or all of the three preceding Groups.* Prin. sp. 28.

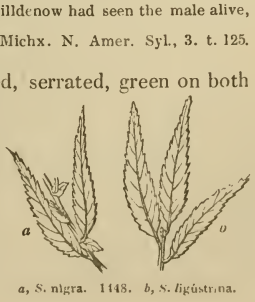


Of the willows of Europe Koch has associated the kinds of Mr. Borrer's groups Pentándræ, Frágiles, and A'lbæ into one group, which he has named Frágiles; and he has pointed out and described, as extra-European kinds belonging to it, *S.* occidentàlis *Bosc*, *S.* nìgra *Mühl.*, *S.* babylónica *L.*, *S.* octándra *Sieber*, and *S.* Humboldt*iàna* Willd. Mr. Borrer has included *S.* babylónica *L.* in his group Frágiles. The rest are here collected in a group by themselves, to which is added *S.* *l*ígústrina *Michx. jun.*, from the notice by Mr. Forbes, and also by Michaux, that it is similar to *S.* nìgra.

♃ 28. *S.* NI'GRA *Mühlenb.* The black, *or dark-branched American*, Willow.

*Identification.* Mühlenb. in Nov. Act. Soc. Nat. Scrut. Berol., 4. p. 237. t. 4. f. 5.; Pursh Fl Amer. Sept., 2. p. 614.
*Synonymes.* *S.* carolinìàna *Michx. Fl. Bor. Amer.* 2. p. 226.; *S.* pentándra *Walt. Fl. Car.* 243.; *S.* vulgàris *Clayt. Fl. Virg.*
*The Sexes.* Both sexes are noticed in the specific character. Willdenow had seen the male alive, and both sexes in a dried state.
*Engravings.* Nov. Act. Soc. Nat. Scrut. Berol., 4. t. 4. f. 5.; Michx. N. Amer. Syl., 3. t. 125. f. 1. without flowers; and *fig.* 152. in p. 818.

*Spec. Char., &c.* Leaves ovate-lanceolate, pointed, serrated, green on both sides, glabrous, except a downy rib and footstalk. Catkins accompanying the leaves, villous. Stamens about 5, bearded at the base. Ovary stalked, ovate-lanceolate, glabrous. Stigmas divided, the length of the style. (*Sal. Wob.*) A tree, with smooth branches, brittle at the base. Pennsylvania to Virginia, on the banks of rivers. Height 20 ft. Introduced in 1811. Flowers yellow; May.



*a*, *S.* nìgra. 1448. *b*, *S.* *l*ígústrina.

Mr. Forbes observes that *S. ligústrina* of Michaux differs principally from *S.* nìgra in its larger stipules, which resemble, as well as the leaves, those of *S.* triándra. (*Sal. Wob.*, p. 28.) In *fig.* 1448. *a* shows *S.* nìgra, *b* S. *ligústrina.*

29. *S.* HUMBOLDT*IA'NA* Willd. (Sal. Wob., No. 8.; and *fig.* 8. in p. 792.) is described in our first edition.

? 30. *S.* BONPLAND*IA'NA* Humb. et Bonpl. (Sal. Wob., t. 9.; and *fig.* 9. in p. 792.) is described in our first edition.

## Group viii. *Prinoìdes* Borrer.

*Shrubs, mostly Natives of North America, and used in Basket-making.* Prin. sp. 32. and 33.

Kinds all, or all but *S.* confórmis *Forbes*, natives of North America. The kinds which Mr. Borrer has placed in this group are *S.* rígida *Mühl.*, *S.* prinoìdes *Pursh*, and *S.* confórmis *Forbes*. To these *S.* díscolor *Willd.* and *S.* angustàta *Pursh* have been added, from their resemblance to *S.* prinoìdes.

31. *S.* RI'GIDA *Mühlenb.* (Sal. Wob., No. 141., a leaf; and *fig.* 141. in p. 818.) is described in our first edition.

32. *S.* PRINOÌ'DES *Pursh.* The Prinos-like Willow.

*Identification.* Pursh Fl. Amer. Sept., 2. p. 613.; Smith in Rees's Cycl., No. 26.
*The Sexes.* The female is figured in *Sal. Wob.*
*Engravings.* Sal. Wob., No. 40.; our *fig.* 1449.; and *fig.* 40. in p. 800.

*Spec. Char., &c.* Leaves oval-oblong, acute, with distant wavy serratures; glabrous above, glaucous beneath. Stipules half-heart-shaped, deeply toothed. Catkins villous, protruded before the leaves. Ovary stalked, ovate, pointed, silky. Style elongated. Stigmas cloven. (*Pursh.*) A large deciduous shrub or low tree. Pennsylvania to Virginia, on the banks of rivers. Height 6 ft. to 12 ft. Introduced in 1811. Flowers yellow; March and April.

1449. *S.* prinoìdes.

33. *S.* DI'SCOLOR *Mühlenb.* (Sal. Wob., No. 147., a leaf; and our *fig.* 147. in p. 818.) is described in our first edition.

34. *S.* ANGUSTA'TA *Pursh* (Fl. Amer. Sept., 2. p. 113.) is described in our first edition.

35. *S.* CONFO'RMIS *Forbes* (Sal. Wob., No. 24.; and *fig.* 24. in p. 795.) is described in our first edition.

## Group ix. *Grìseæ* Borrer.

*Chiefly Shrubs, Natives of North America.* Prin. sp. 40. and 43.

Most of the kinds are natives of North Americea. *S.* Mühlenber*giàna* Willd.,

*S.* cordàta *Mühlenb.*, *S.* falcàta *Pursh*, and *S.* trístis *Ait.*, are additions to the kinds which Mr. Borrer has placed in this group. With regard to *S.* refléxa *Forbes*, *S.* virgàta ? *Forbes*, and *S.* Lyònii ? Schl., included in it by Mr. Borrer, he remarks, "I am unacquainted with these, and have, perhaps, placed them in the wrong group."

36. *S.* VIRE'SCENS *Forbes.* The greenish-*leaved* Willow, *or verdant Osier.*

*Identification.* Forbes in Sal. Wob., No. 7.
*Synonyme.* Mr. Forbes received the kind from Messrs. Loddiges, under the name *S. hippophaeòlia*, but has substituted the specific name of viréscens, as being one more descriptive of the plant.
*The Sexes.* The female is described and figured in *Sal. Wob.*
*Engravings.* Sal. Wob, No. 7.; our *fig.* 1450.; and *fig.* 7. in p. 792.

1450. *S.* viréscens.

*Spec. Char., &c.* Leaves linear-lanceolate, serrated, acute, smooth, green on both sides. Ovary ovate-lanceolate, scarcely downy. Style divided. Stigmas parted. Stipules none. (*Forbes.*) An upright shrub. Switzerland. Height 8 ft. Introduced in 1820. Flowers yellow; April.

37. *S.* REFLE'XA *Forbes* (Sal. Wob., No. 94.; and our *fig.* 94. in p. 807.) is described in our first edition.

38. *S.* VIRGA'TA *Forbes* (Sal. Wob., No. 12., without flowers; and our *fig.* 12. in p. 793.) is described in our first edition.

39. *S.* LYO'NII ? Schl. (Sal. Wob., No. 10., without flowers; and our *fig.* 10. in p. 792.) is described in our first edition.

40. *S.* HOUSTONIA'NA Pursh. Houston's Willow.

*Identification.* Pursh Fl. Amer. Sept., 2. p. 634.; Smith in Rees's Cyclo., No. 43.
*Synonyme.* *S.* trístis *Lodd. Cat.* ed. 1836.
*The Sexes.* The male is described in Pursh's specific character, and the female is described and figured in *Sal. Wob.*
*Engravings.* Sal. Wob., No. 11.; and *fig.* 11. in p. 792.

*Spec. Char., &c.* Leaves linear-lanceolate, and very finely serrated, glabrous, shining, and green on both sides. Stipules none. Catkins accompanying the leaves, cylindrical, villous. Bracteas ovate, acute. Stamens 3 to 5, bearded half-way up. Branches extremely brittle at the base. (*Pursh.*) A low-growing shrub, with slender, roundish, smooth, yellowish branches. Virginia and Carolina. Height 3 ft. to 4 ft. Introduced in 1820. Flowers yellow; May and June.

41. *S.* FALCA'TA *Pursh* (Sal. Wob., No. 148., a leaf; and our *fig.* 148. in p. 818.) is described in our first edition.

42. *S.* GRI'SEA *Willd.* (Ann. of Bot., 2. t. 5. f. 8.) is described in our first edition.

43. *S.* PETIOLA'RIS *Smith.* The *long*-petiolated Willow.

*Identification.* Smith in Lin. Soc. Trans., 6. p. 122.
*Synonymes.* *S.* grísea *Willd.* var. β subglabràta *Koch Comm.* p. 21. note *. Koch regards the *S.* petiolàris *Smith* as a var. of *S.* grísea; and it probably is so. (*Borrer* in a letter.)
*The Sexes.* The female is figured in *Eng. Bot.* and *Sal. Wob.* Smith observes that he "knows nothing of the male plant." (*Eng. Fl.*) Mr. Borrer had formerly both sexes growing at Henfield, having received the male from Mr G. Anderson, but at present he has the female only. (*W. B.*)
*Engravings.* Eng. Bot., t. 1147.; Sal. Wob., No. 23.; our *fig.* 1451.; and *fig.* 23. in p. 795.

*Spec. Char., &c.* Leaves lanceolate, serrated, glabrous; glaucous beneath, somewhat unequal at the base. Stipules lunate, toothed. Catkins lax. Bracteas hairy, shorter than the stalks of the ovate silky ovaries. Stigmas divided, sessile. (*Smith.*) A bushy tree, with slender, spreading, flexible, smooth, purplish or dark brown branches. Scotland, in Angusshire and other places. Height 12 ft. to 15 ft. Flowers yellow; April and May.

1451. *S.* petiolàris.

Easily known from every other species, by its short obtuse catkins, and long dark leaves. After gathering, the young

leaves especially exhale a strong scent, not unlike the flavour of bitter almonds, but less agreeable.

44. *S.* PENNSYLVA'NICA *Forbes* (Sal. Wob., No. 95.; and our *fig.* 95. in p. 808.) is described in our first edition.

45. *S.* MÜHLENBERG*IA'NA* Willd. (Sal. Wob., No. 145.; and our *fig.* 145. in p. 818.) is described in our first edition.

46. *S.* TRI'STIS *Ait.* (Sal. Wob., No. 150., a leaf; and our *fig.* 150. in p. 818.) is described in our first edition.

47. *S.* CORDA'TA *Mühlenb.* (Sal. Wob., No. 142., a leaf; and our *fig.* 142. in p. 818.) is described in our first edition.

## Group x. *Rosmarinifòliæ* Borrer.

*Low Shrubs, with narrow Leaves.* Prin. sp. 48.

Stamens 2 to a flower. Ovary silky, stalked. Catkins short. Flowers loosely disposed in the catkin. Leaves linear-lanceolate, entire, or toothed with extremely minute glanded teeth.—Plants small upright shrubs. (*Hook.*)

### 48. *S.* ROSMARINIFO'LIA *L.* The Rosemary-leaved Willow.

*Identification.* Lin. Sp. Pl., 1448.; Eng. Fl., 4. p. 214.; Hook. Br. Fl., ed. 3., p. 423.
*Synonyme.* *S.* rosmarinifòlia, part of, *Koch Comm.* p. 49.
*The Sexes.* Both are described in *Willd. Sp. Pl.*, and figured in *Hayne Abbild.*
*Engravings.* Eng. Bot., t. 1365.; Sal. Wob., No. 87.; our *fig.* 1452.; and *fig.* 87. in p. 806.

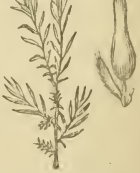
*Spec. Char, &c.* Leaves linear-lanceolate, silky, quite entire, or with a few very minute glanded teeth, especially the young leaves. Catkins shortly oblong, curved, lax. Ovaries stalked, silky, lanceolate-acuminate. Style about as long as the linear divided stigmas. Bracteas short, villous. (*Hook.*) A slender upright shrub. Sweden, Germany, and the northern parts of Britain. Height 2 ft. to 5 ft. Flowers yellow; April.

1452. *S.* rosmarinifòlia.

### 49. *S.* ANGUSTIFO'LIA *Borrer, Hooker, ? Wulf.* The narrow-leaved Willow.

*Identification.* Borrer and Hook. in Hook. Br. Fl., ed. 2., p. 417.; ? Wulf. in Jacq. Coll., 3. 48.
*Synonymes.* *S.* arbúscula *Smith Fl. Brit.* p. 1050.; *S.* rosmarinifòlia α *Koch Comm.* p. 49.
*The Sexes.* The female is described in *Eng. Flora*, and figured in *Eng. Bot.* and *Sal. Wob.*
*Engravings.* Eng. Bot., t. 1366.; Sal. Wob., t. 86.; our *fig.* 1453.; and *fig.* 86. in p. 806.

*Spec. Char., &c.* Leaves linear-lanceolate, nearly glabrous, with minute glandular teeth; the young leaves silky; glaucous beneath. Catkins ovate, erect. Ovaries ovate-acuminate, densely silky, stalked. Style about as long as the broad, erect, entire stigmas. Bracteas very villous, nearly as long as the young ovaries. (*Hook.*) A low shrub. Scotland, on the Clova Mountains, and also near Dumfries. Height 1 ft. Flowers yellow; April.



1453. *S.* angustifòlia.

50. *S.* DECU'MBENS *Forbes* (Sal. Wob., No 88.; and *fig.* 88. in p. 806.) is described in our first edition.

51. *S.* FUSCA'TA *Pursh* (Fl. Amer. Sept., 8. p. 612.) is described in our first edition.

## Group xi. *Fúscæ* Borrer

*Mostly procumbent Shrubs.* Prin. sp. 52 and 53.

Stamens 2 to a flower, as far as to the kinds whose male flowers have been observed. Ovary silky, stalked. Catkins ovate or cylindrical. Leaves between elliptical and lanceolate; mostly silky beneath; nearly entire. —Plants small shrubs. Stem, in most, procumbent. *S.* fúsca *L.*, *Hooker*, var. 1., and *S.* Doniàna Smith, have a likeness in aspect to the kinds of the group Purpùreæ, except *S.* rùbra *Huds.* (*Hook.*)

### ⁂ 52. *S.* FU'SCA *L.* The brown Willow.

*Identification.* Hook. Br. Fl., ed. 2, p. 417.; ? Hayne Abbild., p. 242.
*Synonymes.* *S.* rèpens *Hook. Fl. Scot.* 1. p. 284.; *S.* rèpens *Koch*, part of, *Koch Comm.* p. 47.
*The Sexes.* The female is figured in *Hayne Abbild.*, if the *S.* fúsca of that work is the *S.* fúsca *L.*
*Engravings.* Hayne Abbild., t. 184.; Sal. Wob.; and our *fig.* 83. in p. 806.

*Spec. Char., &c.* Stems more or less procumbent. Leaves elliptical or elliptic-lanceolate, acute; entire, or serrated with minute glanded serratures; somewhat downy; glaucous, and generally very silky beneath. Ovary lanceolate, very silky, seated upon a long stalk. Stigmas bifid. (*Hook.*) A decumbent shrub. Britain, on heaths. Height 6 in. to 1 ft. Stamens yellow; May.

*Varieties.*

- ⁂ S. *f.* 1 *vulgàris.* *S.* f. var. α *Hook. Br. Fl.* ed 2.; *S.* fúsca *Smith Eng. Bot.* t. 1960., *Forbes* in *Sal. Wob.* No. 83.; *S.* rèpens *Koch* β *Koch Comm.* p. 47.; and our *fig.* 83. in p. 806. — Stem decumbent below, then upright, much branched. Leaves elliptic lanceolate.
- ⁂ S. *f.* 2 *rèpens.* *S.* f. β *Hook. Br. Fl.* ed. 2.; *S.* rèpens *Lin. Sp. Pl.* 1447., *Forbes* in *Sal. Wob.* No. 84.; and our *fig.* 84. in p. 836. — Leaves elliptic-lanceolate, straight, somewhat pointed, nearly entire; almost naked above, glaucous and silky beneath. Stipules none. Stem depressed, with short upright branches.
- ⁂ S. *f.* 3 *prostràta.* *S.* f. var. γ *Hook. Br. Fl.* ed. 2.; *S.* prostràta *Smith Eng. Bot.* t. 1959., *Forbes* in *Sal. Wob.* No. 82.; and our *fig.* 82. in p. 806. — Leaves elliptic-oblong, convex, somewhat toothed, with a curved point; glaucous, silky, and veiny beneath. Stipules minute. Stems prostrate, with elongated straight branches. Ovary stalked, ovate, silky. Styles shorter than the stigmas.
- ⁂ S. *f.* 4 *fœ'tida.* *S.* f. var. δ *Hook. Br. Fl.* ed. 2.; *S.* fœ'tida *Smith Eng. Fl.* iv. p. 208.—Stem recumbent. Leaves elliptical.
- ⁂ S. *f.* 5 *incubàcea.* *S.* f. 5 *Hook. Br. Fl.* ed. 3.; *S.* incubàcea *Lin. Sp. Pl.* 1447., *Forbes* in *Sal. Wob.* No. 79.; and our *fig.* 79. in p. 806.— Leaves elliptic-lanceolate, nearly entire, acute, with a twisted point; glaucous and silky beneath. Stipules stalked, ovate, acute. Stem procumbent. Branches erect. Catkins erect, oblong-cylindrical. Stalk of the silky ovary about as long as the obovate bractea (scale). (*Borrer.*)
- ⁂ S. *f.* 6 *argéntea.* *S.* f. 6 *Hook. Br. Fl.* ed. 2.; *S.* argéntea *Smith Eng. Bot.* t. 1364., *Forbes* in *Sal. Wob.* No. 78.; and our *fig.* 78. in p. 806. — Leaves elliptical, entire, somewhat revolute, with a recurved point; rather downy above, silky and shining beneath, as well as the branches. Stem upright. Ovary ovate-lanceolate, silky; its silky stalk nearly equal to the linear oblong bractea. Style not longer than the stigmas.

### ♣ 53. *S.* Donia'na Smith. Don's, *or the rusty-branched*, Willow

*Identification* Smith in Eng Fl., 4. p. 213.; Hook. Br. Fl., ed. 3., p. 424.; Borrer in Eng. Bot. Suppl., t. 2599.
*The Sexes.* The female is described and figured in *Sal. Wob.* and *Eng. Bot.* The male has not yet been discovered.
*Engravings.* Sal. Wob., No. 85.; Eng. Bot., t. 2599.; our *fig.* 1454.; and *fig.* 85. in p. 806.

*Spec. Char., &c.* Leaves obovate-lanceolate, partly opposite, acute, slightly serrated, even; livid and somewhat silky beneath. Stipules linear. Branches erect. Catkins erect, cylindrical. Ovary stalked, silky, longer than the obovate bearded bractea. (*Smith.*) A shrub, with straight, wand-like, round, leafy branches, of a reddish or rusty brown, scarcely downy, except when very young. Scotland, on mountains. Height 5 ft. to 6 ft. Flowers yellow; May.

1454. *S. Doniàna.*

## Group xii. *Ambíguæ* Borrer.

*Shrubs.* Prin. sp. 54. and 58.

*S.* finmárchica *Willd.* has been added to the kinds included in this group by Mr. Borrer.

### ⚹ ♣ 54. *S.* ambi'gua *Ehrh., Borrer.* The ambiguous Willow.

*Identification.* Borrer in Eng. Bot. Suppl., t. 2733.; Hook. Br. Fl., ed. 2., p. 418.
*Synonymes.* Some are cited under the varieties treated of below; *S.* ambígua *Koch*, part of, *Koch Comm.*, p. 49.
*The Sexes.* Both sexes of var. α, the female of var. β, the male of var. γ, and the female of var. δ are figured in *Eng. Bot. Suppl.*
*Engravings.* Eng. Bot. Suppl., t. 2733.; and our *fig.* 1455.

*Spec. Char., &c.* Leaves oval, obovate, or lanceolate, slightly toothed, and having a recurved point; pubescent, somewhat rugose above, glaucous and having prominent veins beneath. Stipules half-ovate, acute. Catkins stalked, upright, cylindrical. Ovary stalked, densely silky. Style very short. Stigmas short, at length cloven. (*Borr.*) A small decumbent shrub. Sussex, Essex, and Suffolk; and various parts of Scotland. Height 6 in. to 1 ft. Flowers yellow; May.

1455. *S.* ámbigua.

It varies much in the procumbent, ascending, or more erect manner of its growth, in the paler or darker brown tinge of the twigs, and in the quantity of pubescence.

*Varieties.*

⚹ ♣ S. *a.* 1 *vulgàris.* *S.* a. α *Borr.* in *Eng. Bot. Suppl.* t. 2733., 5 figures of the two sexes, and description.—A small straggling shrub, with branches sometimes procumbent, sometimes rising 1 or 2 feet from the ground.

♣ S. *a.* 2 *màjor.* *S.* a. β màjor *Borrer* in *Eng. Bot. Suppl.* t. 2733., 3 figures of the female, and description; ? *S.* ambígua β *Hook. Br. Fl.* ed. 2. p. 418.; *S.* versifòlia *Sering. Saules de la Suisse* No. 66., *Monogr.* 40. (*Borrer.*) — Foliage silvery.

♣ S. *a.* 3 *spathulàta.* *S.* a. γ spathulàta *Bor.* in *Eng. Bot. Suppl.* t. 2733., where 3 specimens of the male plant are figured and described; *S.* ambígua γ *Hook. Br. Fl.* ed. 2. p. 418.; *S.* spathulàta *Willd. Sp. Pl.* 4. 700.; *S.* spathulàta *Willd.*—Scarcely differs from *S.* ambígua vulgàris, except in the narrower base of the leaf.

S. *a.* 4 *undulàta.* *S.* a. δ undulàta *Borrer* in *Eng. Bot.* t. 2733., 4 figures of the female, and description; *S.* spathulàta *Willd.*, var. undulàta of Professor Mertens. (*Borrer.*) — Remarkable for its lanceolate or almost linear leaves, and distinctly stalked stipules.

? ? 55. *S.* FINMA'RCHICA *Willd.* is described in our first edition.

? 56. *S.* VERSI'COLOR *Forbes.* The various-coloured Willow.

*Identification.* Forbes in Sal. Wob., No. 77.
*The Sexes.* The female is described and figured in *Sal. Wob.*
*Engravings.* Sal. Wob., No. 77.; our *fig.* 1456.; and our *fig.* 77. in p. 806.

*Spec. Char., &c.* Leaves elliptic, almost entire; greyish green and villous above, glaucous and pubescent beneath. Stipules large, ovate. Ovary ovate, stalked, silky. Style smooth. Stigmas divided. (*Forbes.*) A low, depressed or trailing, deciduous shrub. Switzerland. Height 2 ft. Introduced in 1824. Flowers yellow; May.

1456. *S.* versicolor.

57. *S.* ALATERNÖI'DES *Forbes* (Sal. Wob., No. 76.; and our *fig.* 76. in p. 806.) is described in our first edition.

? 58. *S.* PROTEÆFO'LIA Schl. The Protea-leaved Willow.

*Identification.* Schleicher, quoted in Hook. Br. Fl., ed. 2., p. 419.; Forbes in Sal. Wob., No. 75
*Synonymes.* Erroneously referred to *S.* ambigua in *Hook. Br. Fl.* ed. 2. (*Borrer MSS.*)
*The Sexes.* The female is described and figured in *Sal. Wob.*
*Engravings.* Sal. Wob., No. 75.; and our *fig.* 75. in p. 805.

*Spec. Char., &c.* Leaves elliptical, entire; villous above, white and silky beneath. Stipules ovate, silky. Catkins thick, obtuse. Ovary stalked, ovate, silky. Bractea obovate, silky. Stigmas undivided. (*Sal. Wob.*) A handsome upright-growing shrub, or low tree. Switzerland. Height 12 ft. to 20 ft. Introduced in 1820. Flowers yellow; April and May.

## Group xiii. *Reticulàtæ* Borrer.

*Leaves reticulated and coriaceous.* Prin. sp. 59

The characteristics of this group, as adopted in *Hook. Br. Fl.*, are not described; because it consists of only one species, the *S.* reticulàta *L.*, and the characteristics of this species may be deemed representative of those of the group.

59. *S.* RETICULA'TA *L.* The netted, *or wrinkled*, *leaved* Willow.

*Identification.* Lin. Sp. Pl., 1446.; Eng. Fl., 4. p. 200.; Hook. Br. Fl., ed. 2., p. 419.
*The Sexes.* Both sexes are figured in *Eng Bot.* and *Sal. Wob.*, *Host. Sal. Aust.* and *Hayne Abbild*
*Engravings.* Eng. Bot., t. 1908.; our *fig.* 1457.; and *fig.* 67. in p. 804.

*Spec. Char., &c.* Leaves orbicular, somewhat elliptical, obtuse, entire, coriaceous, with reticulated veins, nearly glabrous; glaucous beneath. Ovary sessile, downy. A procumbent shrub, larger than *S.* herbàcea. The young foliage is often floccose. England, and the high mountains in Wales and Scotland. Height 6 in. Flowers purplish red; May to July.

1457. *S.* reticulàta.

A very pretty little plant, particularly well adapted for forming one of a selection for growing in pots, so as to form a portable salictum; or for growing on rockwork.

## Group xiv. *Glaúcæ* Borrer.

*Small, upright, with soft silky Leaves.* Prin. sp. 61. and 62.

Stamens 2 to a flower. Ovary very downy, or silky, sessile. — Plants small shrubs, most of them upright; all, or most of them, remarkable for their foliage, which consists of leaves that are oblong-lanceolate, soft, hairy, silky, and, in most, white and cottony on the under surface. The kinds are very closely akin, each among the rest. (*Hook.*) Only *S.* glaúca *L.*, *S.* arenària *L.*, and *S.* Stuartiàna Smith are associated together under the above characteristics in *Hook. Br. Fl.*, ed. 2. Of the kinds brought together below, as agreeing more or less in the quality of similarity, Mr. Borrer has indicated *S.* elæagnifòlia *Forbes* (elæagnòides *Schleicher*), *S.* glaúca *L.*, *S.* serícea *Villars*, *S.* Lappònum *L.*, *S.* arenària *L.*, *S.* arenària *L.*? var., *S.* leucophýlla *Schleicher;* and *S.* Stuartiàna Smith.

60. *S.* ELÆAGNÖI'DES *Schleicher* (Sal. Wob., No. 69.; and *fig.* 69. in p. 804.), is described in our first edition.

61. *S.* GLAU'CA *L.* The glaucous *Mountain* Willow.

*Identification.* Lin. Sp. Pl., 1446.; Eng. Flora, 4. p. 201.; Hook. Br. Fl., ed. 2., p. 419.
*Synonyme.* *S.* appendiculàta *Fl. Dan.* t. 1056., *Willd. Sp. Pl.* 4. p. 690.
*The Sexes.* Both sexes are described in *Eng. Fl.*; the female is figured in *Eng. Bot.*
*Engravings.* Eng. Bot., t. 1810.; Sal. Wob., No. 68.; our *fig.* 1458.; and *fig.* 68. in p. 804.

1458. *S.* glaúca.

*Spec. Char., &c.* Leaves nearly entire, elliptic-lanceolate; even, and nearly glabrous above; woolly and snowy-white beneath. Footstalks decurrent. Ovary sessile, ovate, woolly. (*Smith.*) A low shrub. Highlands of Scotland. Stem 2 ft. to 3 ft. high, stout, bushy, with numerous short, round, spreading brown or yellowish branches, downy in their early state. Flowers yellow; May to July.

62. *S.* SERI'CEA *Villars.* The silky Willow.

*Identification.* Villars Delph., 3. p. 782. t. 51. f. 27.; Willd. Sp. Pl., 4. p. 688.
*Synonyme.* *S.* glaúca, a synonyme of *Koch Comm.* p. 56. "*S.* serícea of Villars, according to his own specimens, is the true Lappònum; and I have Swiss ones, properly so named, from M. Schleicher. It is Haller's No. 1643." (*Smith* in *Eng. Fl.*, 4. p. 202.)
*The Sexes.* Willdenow has described the female, and noted that he had seen it in a dried state.
*Engravings.* Vill. Delph., 3. t. 51. f. 27.; and *fig.* 74. in p. 805.

*Spec. Char., &c.* Stem prostrate. Leaf oblong-lanceolate, entire, obtuse, silky and hoary on both surfaces. Catkins silky, stout. Capsules ovate-oblong, stout, very villous, sessile. Very different from *S.* glaúca *L.* Branches brown, glossy. Leaves 2 in. long, covered with long appressed hairs. Stipules not apparent. Catkins ½ in. long, cylindrical. Bracteas lanceolate, hairy, caducous. Style short, bifid. Stigmas dilated, bifid. (*Villars.*) A shrub. Alps of Switzerland and France. Height 5 ft. to 6 ft. Introduced in 1820. Flowers yellow; April and May.

63. *S.* LAPPO'NUM *L.* The Laplanders' Willow.

*Identification.* Lin. Sp. Pl., 1447.; Forbes in Sal. Wob., No. 73.
*Synonyme.* *S.* arenària *Fl. Dan.* t. 197. (*Smith.*)
*The Sexes.* The female is described in *Willd. Sp. Pl.*, and described and figured in *Sal. Wob.*
*Engravings.* Lin. Fl. Lapp., t. 8. f. *t.*; Sal. Wob., No. 73.; our *fig.* 1459.; and *fig.* 73. in p. 805.

1459. *S.* Lappònum.

*Spec. Char., &c.* Leaves lanceolate, very entire, bluntish; hoary above, woolly beneath. Seed-vessels woolly and oblong. (*Forbes.*) A decumbent shrub. Lapland. Height 1 ft. Introduced in 1812. Flowers yellow; May and June.

♃ ☿ 64. *S.* OBTUSIFO'LIA *Willd.* (Sp. Pl., 4. p. 705.) is described in our first edition.

♃ 65. *S.* ARENA'RIA *L.* (Sal. Wob., No. 70.; and *fig.* 70. in p. 805.) is described in our first edition.

☆ 66. *S.* OBOVA'TA *Pursh* (Sal. Wob., No. 144., a leaf; and *fig.* 144. in p. 818.) is described in our first edition.

♃ 67. *S.* CANE'SCENS *Willd.* (Sp. Pl., 4. p. 687.) is described in our first edition.

♃ 68. *S.* STUART*IA'NA* Smith (Sal. Wob., No. 72.; and *fig.* 72. in p. 805.) is described in our first edition.

☆ 69. *S.* PYRENA'ICA *Gouan* (Illustr. 77.) is described in our first edition.

♃ 70. *S.* WALDSTEIN*IA'NA* Willd. (Sp. Pl., 4. p. 679.) is described in our first edition.

## Group XV. *Viminàles* Borrer.

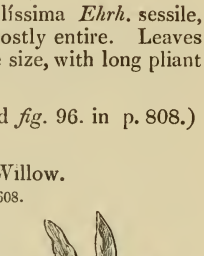
*Willows and Osiers. — Mostly Trees or large Shrubs, with long pliant Branches, used for Basket-making.* Prin. sp. 72. 75, 76. and 82.

Stamens 2 to a flower. Ovary nearly sessile; in *S.* mollíssima *Ehrh.* sessile, hairy or silky. Style elongated. Stigmas linear, mostly entire. Leaves lanceolate. — Plants trees of more or less considerable size, with long pliant branches. (*Hook.*)

♃ 71. *S.* SUBALPI'NA *Forbes* (Sal. Wob., No. 93.; and *fig.* 96. in p. 808.) is described in our first edition.

### ♃ 72. *S.* CA'NDIDA *Willd.* The whitish Willow.

*Identification.* Willd. Sp. Pl., 4. p. 708.; Pursh Fl. Amer. Sept., 2. p. 608.
*The Sexes.* The male is described and figured in *Sal. Wob.*
*Engravings.* Sal. Wob., No. 91.; our *fig.* 1460.; and *fig.* 91. in p. 807.



1460. *S.* cándida.

*Spec. Char., &c.* Leaves linear-lanceolate, very long, obscurely toothed; downy above; beneath densely downy. Stipules lanceolate, nearly the length of the footstalks. (*Willd.*) A shrub. North America. Height 5 ft. to 10 ft. Introduced in 1811. Flowers yellow; February and March.

A very handsome species, well deserving a place in shrubberies, both for its ornamental white leaves, and very early flowers.

### ♃ ? ☿ 73. *S.* INCA'NA *Schranck.* The hoary-*leaved* Willow, *? or Osier.*

*Identification.* Schranck Baier (Bavar.) Fl., 1. p. 230.; Koch Comm., p. 32.
*Synonymes.* *S.* ripària *Willd. Sp. Pl.* 4. p. 698.; *S.* lavandulæfòlia *Lapeyr. Abr.* p. 601.; *S.* angustifòlia *Poir.* in *Du Ham. Arb.* ed. 1. 3. t. 29.; *S.* rosmarinifòlia *Gouan Hort.* 501.; *S.* viminàlis *Vill. Delph.* 3. p. 785.
*The Sexes.* Both are figured in *Hayne Abbild.*: the male is figured in *Sal. Wob.*, where Mr. Forbes has noticed that he had not seen the catkins of the other sex. If the kind of *Host Sal. Austr.* is identical, both sexes of it are figured in that work.
*Engravings.* Sal. Wob., No. 90.; ? Host Sal. Austr., t. 58, 59.; our *fig.* 1461.; and *fig.* 90. in p. 807.

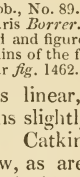
1461 *S* incàna.

*Spec. Char., &c.* Leaves linear-lanceolate, denticulated, hoary on the under surface with hoary tomentum. Catkins arched, slender, almost sessile, subtended at the base with small leaves. Capsule ovate-lanceolate, glabrous, stalked; the stalk twice the length of the gland. Style elongated. Stigmas

bifid. Bracteas subglabrous, ciliate with short hairs. (*Koch.*) A shrub, with leaves bearing a strong resemblance to those of *S.* viminàlis; while the catkins, branches, and mode of growth are quite different. Alps of France and Switzerland. Height 5 ft. to 6 ft. Introduced in 1821. Flowers yellow; April.

74. *S.* LINEA'RIS *Forbes.* The linear-*leaved* Willow.

*Identification.* Forbes in Sal. Wob., No. 89.
*Synonyme.* ? *S.* incàna var. lineàris *Borrer.* (*Borrer* in a letter.)
*The Sexes.* The male is described and figured in *Sal. Wob.* Mr. Forbes has noted that he had not seen catkins of the female.
*Engravings.* Sal. Wob., 89.; our *fig.* 1462.; and *fig.* 89. in p. 807.

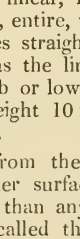

1462. *S.* lineàris.

*Spec. Char., &c.* Leaves linear, villous; shining above, cottony beneath; margins slightly denticulated. Branches brown. Stipules none. Catkins elliptical, nearly sessile. Bracteas elliptical, yellow, as are also the anthers. (*Sal. Wob.*) A low bushy deciduous shrub, with copious branches, dark brown or purplish in every stage. Switzerland. Height 5 ft. to 10 ft. Introduced in 1820. Flowers yellow; April and May.

75. *S.* VIMINA'LIS *L.* The twiggy Willow, *or common Osier.*

*Identification.* Lin. Sp. Pl., 1448.; Eng. Fl., 4. p. 228.; Hook. Br. Fl., ed. 3.
*Synonyme.* *S.* longifòl.a *Lam. Fl. Fr.* 2. 232. (*Koch.*)
*The Sexes.* Both sexes are figured in *Eng. Bot.*, *Sal. Wob.*, *Hayne Abbild.*, and *Host Sal. Austr.* Both exist in Britain. The male seems less robust and vigorous than the female.
*Engravings.* Eng. Bot., t. 1898.; Sal. Wob., No. 133.; our *fig.* 1463.; and *fig.* 133. in p. 817.

*Spec. Char., &c.* Leaves linear, inclining to lanceolate, elongated, taper-pointed, entire, wavy; snow-white and silky beneath. Branches straight and slender. Ovary sessile. Style as long as the linear undivided stigmas. (*Smith.*) A large shrub or low bushy tree. England, in wet meadows. Height 10 ft. to 20 ft. Flowers yellow; April and May.


1463. *S.* viminàlis.

Readily distinguished from the other species of the section by the satiny under surface of the leaves; and more generally cultivated than any other for basketwork and hoops. A variety called the Dutch willow, with brown bark, is preferred where hoops are the object.

76. *S.* STIPULA'RIS *Smith.* The stipuled, *or auricled-leaved, Osier, or* Willow.

*Identification.* Smith Fl. Brit., p. 1069.; Eng. Flora, 4. p. 230.; Hook. Br. Fl., ed. 2., p. 420.
*The Sexes.* Both are described in *Eng. Flora*, and both are figured in *Eng. Bot.* and *Sal. Wob.*
*Engravings.* Eng. Bot., t. 1214.; Sal. Wob., 132.; and *fig.* 132. in p. 816.

*Spec. Char., &c.* Leaves lanceolate, pointed, slightly wavy, obscurely crenate; soft and nearly naked above, white and downy beneath. Stipules half-heart-shaped, stalked, very large. Gland cylindrical. Ovary ovate, nearly sessile, as well as the linear undivided stigmas. (*Smith.*) A large shrub or low tree. England, in osier holts, hedges, and woods. Height 10 ft. to 20 ft. Flowers yellow; March.

Twigs upright, tall, soft and downy, of a pale reddish brown, brittle, and of little or no use as an osier.

77. *S.* SMITHIA'NA Willd. (Eng. Bot., t. 1509.; Sal. Wob., No. 134., the female; and our *fig.* 134. in p. 817.) is described in our first edition.

78. *S.* MOLLI'SSIMA *Ehrh.* (Beitr., 6. p. 101.) is described in our first edition.

? 79. *S.* HOLOSERI'CEA *Hook.* (Br. Fl., ed. 2., p. 421.) is described in our first edition.

? 80. *S.* MICHELIA'NA Forbes (Sal. Wob., t. 135.; and *fig.* 135. in p. 817.) is described in our first edition.

♁ 81. *S.* FERRUGI'NEA *Anderson* (Sal. Wob., No. 128.; Eng. Bot. Suppl., t. 2665.; and our *fig.* 128. in p. 815.) is described in our first edition.

♈ 82. *S.* ACUMINA'TA *Smith.* The acuminated-*leaved, or large-leaved, Sallow, or* Willow.

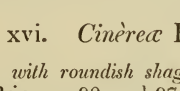
*Identification.* Smith Fl. Brit., p. 1068., Eng. Fl., 4. p. 227.; Hook. Br. Fl., ed. 2., p. 421.
*Synonyme.* *S.* lanceolàta *Seringe.*
*The Sexes.* The female is described in *Eng. Fl.*, and figured in *Eng. Bot.* and in *Sal. Wob.*
*Engravings.* Eng. Bot., t. 1434.; Sal. Wob., No. 131.; our *fig.* 1464. in p. 774.; and *fig.* 131. in p. 816.

*Spec. Char., &c.* Stem erect. Leaves lanceolate-oblong, pointed, wavy, finely toothed, glaucous and downy beneath. Stipules half-ovate, then kidney-shaped. Catkins cylindrical. Ovary stalked, ovate, hairy. Style as long as the undivided stigmas. (*Smith.*) A large shrub or low tree. England, in wet grounds. Height 25 ft. to 30 ft. Flowers yellow; April and May.

A very distinct sallow, soon recognised to be different from *S.* macrostipulàcea by its downy germen, and much larger leaves.

## Group xvi. *Cinèreæ* Borrer.

*Sallows. — Trees and Shrubs, with roundish shaggy Leaves, and thick Catkins.* Prin. sp. 90. and 97.



Stamens 2 to a flower. Ovary tomentose with silky tomentum. Leaves mostly obovate, toothed, grey or hoary, more or less wrinkled; very veiny beneath; stipuled branches downy. — Plants trees or shrubs. The group includes the kinds of willow that are usually called the sallows. (*Hook.*) The sallows are known by their obovate or rounded downy leaves, and thick, early, silken catkins, with prominent, yellow, distinct stamens, 2 to a flower. (*Smith Eng. Fl.*, iv. p. 216.) Not a few of the group Nigricántes *Borrer* also have been regarded as sallows. Mr. Borrer, however, states that he is unacquainted with many of the species, or supposed species, of this group, and of the group Nigricántes; and it is highly probable that many of them are placed wrongly. (*Borrer* in a letter.)

♃ 83. *S.* PA'LLIDA *Forbes* (Sal. Wob., No. 96.; and *fig.* 96. in p. 808.) is described in our first edition.

♃ 84. *S.* WILLDENOV*IA'NA* Forbes (Sal. Wob., No. 41.; and *fig.* 41. in p. 801.) is described in our first edition.

♃ 85. *S.* PONTEDERA'*NA* Willd. Pontedera's Willow.

*Identification.* Willd. Sp. Pl., 4. p. 661.; Smith in Rees's Cyclo., No. 18.; Koch Comm., p. 24.
*Synonymes.* *S.* pumila alpina nigricans, folio oleagino serrato, *Ponted. Comp.* 148, 149.; *S.* Pontedèræ Bellardi App. ad Fl. Ped. 45.
*The Sexes.* The male is noticed in Koch's specific character; the female is figured in *Sal. Wob.*
*Engravings.* Sal. Wob., No. 43.; our *fig.* 1465. in p. 775.; and *fig.* 43. in p. 801.

*Spec. Char., &c.* Leaves elliptical, serrated, acute, glabrous; glaucous beneath, and obtuse at their base; the midrib, footstalks, and young leaves hairy. Ovary oblong and downy. (*Sal. Wob.*) A shrub or low tree. Switzerland. Height 12 ft. to 13 ft. Introduced 1821. Flowers yellow; April.

♈ 86. *S.* MACROSTIPULA'CEA *Forbes* (Sal. Wob., No. 130.; and *fig.* 130. in p. 815.) is described in our first edition.

♃ ♈ 87. *S.* INCANE'SCENS ? *Schl.* (Sal. Wob., No. 120.; and *fig.* 120. in p. 813.) is described in our first edition.

♃ ♈ 88. *S* PANNO'SA *Forbes* (Sal. Wob., t. 123.; and *fig.* 123. in p. 814.) is described in our first edition.

1464. Salix acuminata.

1455. Sàlix Pontederàna.

89. *S.* MUTA'BILIS *Forbes* (Sal. Wob., No. 160.) is described in our first edition.

90. *S.* CINE'REA *L.* The *grey Sallow, or* ash-coloured Willow.

*Identification.* Lin. Sp. Pl., 1449.; Eng. Fl., 4. p. 215.; Hook. Br. Fl., ed. 3.
*Synonyme.* *S.* cinèrea var. *Koch Comm.* p. 36.
*The Sexes.* Both sexes are figured in *Sal. Wob.* The male is figured in *Eng. Bot.*
*Engravings.* Eng. Bot., t. 1897.; Sal. Wob., No. 125.; our *fig.* 1466.; and *fig.* 125. in p. 814.

*Spec. Char., &c.* Stem erect. Lower leaves entire; upper serrated, obovate-lanceolate; glaucous, downy, and reticulated with veins beneath. Stipules half-heart-shaped, serrated. Ovary silky; its stalk half as long as the lanceolate bracteas. (*Smith.*) A shrub or middle-sized tree. England, on the banks of rivers, and in moist woods. Height 20 ft. to 30 ft. Flowers yellow; April, and again in September.

1466. *S.* cinèrea.

91. *S.* AQUA'TICA *Smith* (Eng. Bot., t. 1437.; Sal. Wob., No. 127.; and our *fig.* 127. in p. 815.) is described in our first edition.

92. *S.* OLEIFO'LIA *Smith* (Eng. Bot., t. 1402.; Sal. Wob., No. 126.; and *fig.* 126. in p. 814.) is described in our first edition.

93. *S.* GEMINA'TA *Forbes* (Sal. Wob., No. 129.; and *fig.* 129. in p. 815.) is described in our first edition.

94. *S.* CRI'SPA *Forbes* (Sal. Wob., No. 42.; and *fig.* 42. in p. 801.) is described in our first edition.

95. *S.* AURI'TA *L.* (Eng. Bot., t. 1487.; Sal. Wob., No. 124.; and our *fig.* 124. in p. 814.) is described in our first edition.

96. *S.* LATIFO'LIA *Forbes* (Sal. Wob., No. 118.; and *fig.* 118. in p. 813.) is described in our first edition.

97. *S.* CA'PREA *L.* The Goat Willow, *or the great round-leaved Sallow.*

*Identification.* Lin. Sp. Pl., 1448.; Eng. Fl., 4. p. 225.; Hook. Br. Fl., ed. 3., p. 429.
*Synonymes.* Common Black Sallow, Saugh *in Yorkshire*, Grey Withy.
*Derivation.* The name càprea seems to have originated in the reputed fondness of goats for the catkins, as exemplified in the wooden cut of the venerable Tragus, their namesake.

1467. *S.* càprea.

1468. *S.* caprea, male.

*The Sexes.* Both sexes are figured in *Sal. Wob.*, and both in *Hayne Abbild.*
*Engravings.* Hoffm. Sal., t. 3. f. 1, 2. t. 21. f. a. b. c.; Eng. Bot., t. 1488.; Sal. Wob., No. 122.; our *fig.* 1467., from the *Sal. Wob.*; and *fig.* 1468. representing the male, and *fig.* 1469. the female, both from Host's *Sal. Aust.*, t. 66, 67.; and *fig.* 122. in p. 814.

*Spec. Char., &c.* Stem erect. Leaves roundish-ovate, pointed, serrated, waved; pale and downy beneath. Stipules somewhat crescent-shaped. Catkins oval. Ovary stalked, ovate, silky. Stigmas nearly sessile, and undivided. Capsules swelling. (*Smith.*) A moderate-sized tree, with spreading, round, brown or purplish branches, minutely downy when young. Britain, in woods and dry pastures, common. Height 15 ft. to 30 ft. Flowers yellow, very showy; April and May.

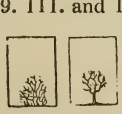
1469. *S. càprea*, female.

Leaves larger and broader than in any other of the genus; of a deep green above, with a downy rib; white underneath, or rather glaucous, and veiny, densely clothed with soft, white, cottony down; generally broadly ovate, approaching to orbicular, with a sharp point; sometimes more elliptical; either rounded or slightly heart-shaped at the base; varying in length from 2 in. to 3 in.; the margin wavy, and more or less strongly serrated. Footstalks stout, downy. Catkins numerous, much earlier than the foliage, and almost sessile. This tree, Sir W. J. Hooker observes, "distinguishes itself, in the spring, by being loaded with handsome yellow blossoms before any of its leaves appear. The flowering branches of this species are called palms, and are gathered by children on Easter Sunday; the relics of the Catholic ceremony formerly performed in commemoration of the entry of our Saviour into Jerusalem.

98. *S.* SPHACELA'TA *Smith* (Eng. Bot., t. 2333.; Sal. Wob., No. 121.; and *fig.* 121. in p. 813.) is described in our first edition.

## Group xvii. *Nigricántes* Borrer.

*Shrubs with long Branches, or small Trees. Mostly Sallows.* Prin. sp. 105. 109. 111. and 122.



A group as difficult to define as are the kinds of which it is constituted. Stamens 2 to a flower. Ovary stalked, glabrous or silky. Style more or less 2-cleft. In leaves, many of this kind approach those of the group Cinèreæ very nearly, having ovate or obovate ones; but the leaves are less wrinkled.—Plants shrubs with long branches, or small trees. (*Hook.*) The

term Nigricántes has been applied to this group, not, as it has been supposed, in allusion to the leaves of the kinds of which it is constituted turning black in drying, but to mark their affinity to *S.* nígricans *Smith*, a well-known individual of their number.

99. *S.* AUSTRA'LIS *Forbes* (Sal. Wob., No. 103.; and our *fig.* 103. in p. 809.) is described in our first edition.

100. *S.* VAUDE'NSIS *Forbes* (Sal. Wob., No. 117.; and our *fig.* 117. in p. 812.) is described in our first edition.

101. *S.* GRISOPHY'LLA *Forbes* (Sal. Wob., No. 119.; and our *fig.* 119. in p. 813.) is described in our first edition.

102. *S.* LACU'STRIS *Forbes* (Sal. Wob., No. 116.; and our *fig.* 116. in p. 812.) is described in our first edition.

103. *S.* CRASSIFO'LIA *Forbes* (Sal. Wob., No. 115.; and our *fig.* 115. in p. 812.) is described in our first edition.

104. *S.* COTINIFO'LIA *Smith.* The Cotinus, *or Quince*, leaved *Sallow*, *or* Willow.

*Identification.* Smith Fl. Br., p. 1066.; Eng. Fl., 4. p. 220.; Hook. Br. Fl., ed. 3., p. 430.
*Synonymes.* *S.* spadícea *Villars's Dauph.* 3777.; *S.* phylicifòlia var. *Koch Comm.* p. 42.
*The Sexes.* The female is described in *Eng. Fl.*, and figured in *Eng. Bot.*, and *Sal. Wob.*
*Engravings.* Eng. Bot., t. 1403.; Sal. Wob., No. 114.; our *fig.* 1470.; and *fig.* 114. in p. 812.

1470. *S.* cotinifòlia.

*Spec. Char., &c.* Stem erect. Branches spreading, downy. Leaves broadly elliptical, nearly orbicular, slightly toothed, glaucous and downy, with rectangular veins beneath. Style as long as the linear notched stigmas. (*Smith Eng. Fl.*) An upright shrub, with straight, round, brown, downy, moderately spreading branches. Britain, in woods, and on the banks of rivers. Height 2 ft. to 8 ft. Flowers yellow; May.

105. *S.* HI'RTA *Smith.* The hairy-*branched Sallow*, *or* Willow.

*Identification.* Smith Eng. Bot., t. 1404.; Eng. Fl., 4. 221.; Hook. Br. Fl., ed. 3.
*Synonyme.* *S.* pícta *Schleicher* is the female of *S.* hírta. (*Forbes* in *Sal. Wob.*)
*The Sexes.* The male is described in *Eng. Fl.*, and figured in *Eng Bot.* and *Sal. Wob.* The female is described in *Sal. Wob.*, and *Hook. Br. Fl.*, ed. 2.
*Engravings.* Eng. Bot., t. 1404.; Sal. Wob., No. 113.; and our *fig.* 113. in p. 811.

*Spec. Char., &c.* Stem erect. Branches densely hairy. Leaves elliptic-heart-shaped, pointed, finely crenate, downy on both sides. Stipules half-heart-shaped, flat, toothed, nearly glabrous. (*Smith.*) A small tree, remarkable for its thick, round, hoary branches, clothed very densely with prominent, close, horizontal, soft, cottony hairs. Britain, in woods and on the banks of rivers. Height 10 ft. to 15 ft. Flowers yellow; May.

106. *S.* RIVULA'RIS *Forbes* (Sal. Wob., No. 102.; and our *fig.* 102. in p. 809.) is described in our first edition.

107. *S.* ATROPURPU'REA *Forbes* (Sal. Wob., No. 156.) is described in our first edition.

108. *S.* CORIA'CEA *Forbes* (Sal Wob., No. 112.; and our *fig.* 112. in p. 811.) is described in our first edition.

109. *S.* NI'GRICANS *Smith.* The dark *broad-leaved* Willow.

*Identification.* Smith Eng. Bot., t. 1213.; Eng. Fl., 4. p. 172.; Hook. Br. Fl., ed. 3.
*Synonyme.* *S* phylicifòlia β *Lin. Sp. Pl.* 1442.
*The Sexes.* Smith has described both sexes in *Eng. Fl.*; the female from Lapland specimens: the male is figured in *Eng. Bot.* and *Sal. Wob.* The *S.* nigréscens *Schl.*, female, is figured in *Sal. Wob.*, as the female of *S.* nígricans *Smith.* It does not appear that the flowers of the female have been found wild in Britain. (*Hook. Br. Fl.*, ed. 2.)
*Engravings.* Lin. Fl. Lapp., t. 8. f. e.; Eng. Bot., t. 1213.; and our *fig.* 37. in p. 799.

*Spec. Char., &c.* Leaves elliptic-lanceolate, acute, crenate; glabrous, with a

downy rib, above; glaucous beneath. Stamens 2, thrice the length of the hairy bractea. Ovary lanceolate, downy, on a short downy stalk. (*Smith.*) A large bushy shrub, scarcely attaining the height or form of a tree, with upright, round, stout, rather brittle branches, glabrous, except when young. Britain, in fens, osier grounds, woods, and thickets. Height 10 ft. to 12 ft. Flowers yellow; April.

110. *S.* ANDERSON*IA'NA* Smith. Anderson's Willow, *or the Green Mountain Sallow.*

*Identification.* Smith Eng. Bot., 2343; Eng. Fl., 4. p. 223.; Hook. Br. Fl., ed. 3.
*Synonyme.* *S. phylicifòlia* var. *Koch Comm.*
*The Sexes.* The female is described in *Eng. Fl.*, and figured in *Eng. Bot.* and in *Sal. Wob.*
*Engravings.* Eng. Bot., t. 2343.; Sal. Wob., No. 109.; and our *fig.* 109. in p. 811.

*Spec. Char., &c.* Stem upright. Leaves elliptical, acute, finely notched, slightly downy, paler beneath. Stipules half-ovate, nearly glabrous. Branches minutely downy. Ovary glabrous; its stalks almost equal to the bractea. Style cloven, longer than the cloven stigmas. (*Smith.*) An upright bushy shrub. Scotland, on the Breadalbane Mountains; and England, on the banks of the Tyne below Newcastle. Height 6 ft. to 12 ft. Flowers yellow; April and May.

111. *S.* DAMASCE'NA *Forbes.* The Damson-*leaved* Willow, *or Sallow.*

*Identification.* Forbes in Sal. Wob., No. 157; Eng. Bot. Suppl., t. 2709.; Hook. Br. Fl., ed. 3.
*Synonymes.* *S. damascenifòlia Anderson MSS.*; *S. phylicifòlia Lin.*
*The Sexes.* The female is described in *Sal. Wob.*, and described in *Eng. Bot. Suppl.* "Mr. Anderson possessed both sexes, but we have seen the female only." (*Borrer.*)
*Engraving.* Eng. Bot. Suppl., t. 2709.

*Spec. Char., &c.* Upright. Young shoots densely hairy. Leaves ovate, or rhomboidal, bluntly toothed; silky when young; at length nearly glabrous; green on both surfaces. Stipules half-heart-shaped. Catkins, with the flowers in blossom, longer than the floral leaves. Bracteas (scales) obovate. Ovary stalked, glabrous. Style divided, longer than the diverging stigmas. (*Borrer.*) An upright bushy shrub, nearly allied to *S. Andersoniàna.* Scotland, on the borders of England. Height 6 ft. to 12 ft. Flowers yellow; April.

112. *S.* ANSON*IA'NA* Forbes (Sal. Wob., No. 107.; and our *fig.* 107. in p. 810.) is described in our first edition.

113. *S.* HELVE'TICA *Forbes* (Sal. Wob., No. 159.) is described in our first edition.

114. *S.* FI'RMA *Forbes* (Sal. Wob., No. 106.; and our *fig.* 106. in p. 810.) is described in our first edition.

115. *S.* CARPINIFO'LIA *Schl.* (Forbes in Sal. Wob., No. 155.) is described in our first edition.

116. *S.* ROTUNDA'TA *Forbes.* The round-*leaved* Willow, *or Sallow.*

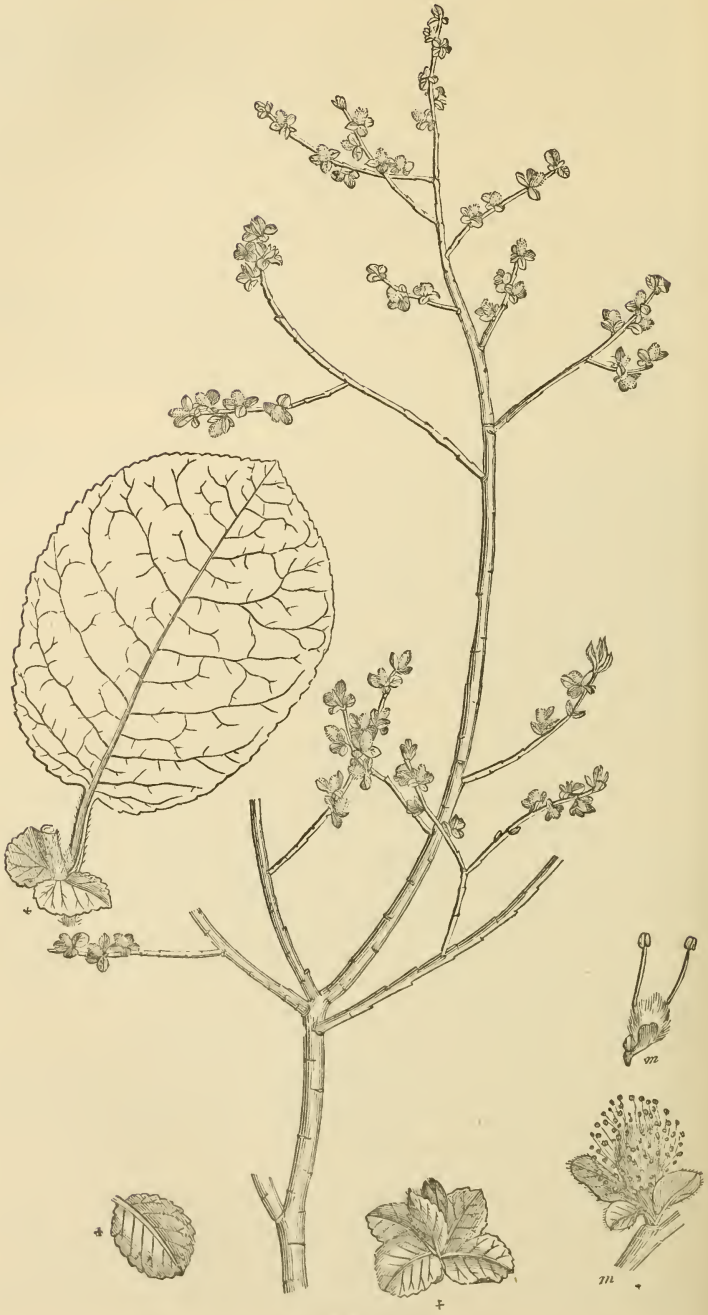
*Identification.* Sal Wob., No. 104.
*Synonyme.* ? *S.* rotundifòlia *Host.*
*The Sexes.* Both sexes are described and figured in *Sal. Wob.*
*Engravings.* Sal. Wob., No. 104.; our *fig.* 1471., p. 780.; and *fig.* 104. in p. 809.

*Spec. Char., &c.* Leaves orbicular, bluntly serrated; glabrous and shining above; glaucous, reticulated, and slightly hairy beneath. Stipules rounded, serrated, glandular. Ovary awl-shaped, glabrous, stalked. Style twice the length of the parted stigmas. (*Sal. Wob.*) An upright-growing shrub or low tree. Switzerland. Height 15 ft. to 20 ft. Introduced in 1824. Flowers yellow; April and May.

117. *S.* DU'RA *Forbes* (Sal. Wob., No. 105.; and our *fig.* 105. in p. 810.) is described in our first edition.

118. *S.* FORSTER*IA'NA* Smith. *The glaucous Mountain Sallow, or* Forster's Willow.

*Identification.* Smith Eng. Fl., 2. p. 224.; Forbes in Sal. Wob., No. 110.; Hook. Br. Fl., ed. 3. p. 431.




1471. Salix rotundifolia.

*Synonyme.* *S. phylicifolia* var. *Koch Comm.* p. 41.
*The Sexes.* The female is described in *Eng. Fl.*, and figured in *Eng. Bot.* where the style is represented too short (*Smith Eng. Fl.*); and in *Sal. Wob.*
*Engravings.* Eng. Bot., t. 2344.; Sal. Wob., No. 110.; and our *fig.* 110. in p. 811.

*Spec. Char., &c.* Stem erect. Branches minutely downy. Leaves elliptic-obovate, acute, crenate, slightly downy, glaucous beneath. Stipules vaulted. Ovary stalked, awl-shaped, silky. Style as long as the blunt notched stigmas. (*Smith.*) A tall shrub or low tree, with finely downy branches. Britain, in Scotland, on the Breadalbane Mountains. Height 15 ft. to 20 ft. Flowers yellow; May.

⁂ 119. *S.* RUPE'STRIS *Donn.* The *silky* Rock Willow, *or Sallow.*

*Identification.* Donn Hort. Cant., ed. 5., p. 231. (*Smith*); Eng. Fl., 4. p. 222.; Hook. Br. Fl., ed. 3.
*The Sexes.* Both sexes are described in *Eng. Fl.*, and figured in *Eng. Bot.*, and in *Sal. Wob.*
*Engravings.* Eng. Bot., t. 2342.; Sal. Wob., No. 111.; and our *fig.* 111. in p. 811.

*Spec. Char., &c.* Stem trailing. Leaves obovate, acute, serrated, flat, even, silky on both sides. Stipules hairy. Branches minutely downy. Ovary stalked, awl-shaped, silky. Style as long as the blunt undivided stigmas. (*Smith.*) A trailing shrub, with dark-coloured branches, covered with very fine down when young. Scotland, in woods, and on the banks of rivers. Height 1 ft. to 2 ft. Flowers yellow; April.

A perfectly distinct kind. The branches are tough, and suitable for tying and basketwork.

⁂ 120. *S.* TENUIFO'LIA *L.* The thin-leaved Willow.

*Identification.* Lin. Fl. Lapp., ed. 2., 292. t. 8. f. *c.*; Eng. Fl., 4. p. 179.; Hook. Br. Fl., ed. 3.; Borr. in Eng. Bot. Supp., t. 2795.
*Synonymes.* *S.* arbúscula *Wahlenb.* var. *Koch Comm.* p. 45. "If Koch had known *S.* tenuifólia *Smith Fl. Br.* in the living plant, I think he would have referred it to his own *S.* phylicifólia." (*Borrer* in a letter.) *S.* tenuifólia of *Eng. Bot.* t. 2186. is *S.* bícolor *Hook. Br. Fl.*
*The Sexes.* Both sexes are described and figured in *Eng. Bot. Supp.*; and figured in *Sal. Wob.*
*Engravings.* Sal. Wob., No. 50.; Eng. Bot. Suppl., t. 2795.; and our *fig.* 50. in p. 802.

*Spec. Char., &c.* Upright. Young shoots and petioles densely pubescent. Disks of leaves elliptical or oblong, flat, with a recurved point, crenate, reticulated with sunken veins, slightly hairy; glaucous beneath. Stipules half-heart-shaped. Catkins on a short stalk that bears small leaves. Bractea oblong, shaggy. Ovary glabrous, on a glabrous stalk. Style as long as the stigmas. A much-branched spreading shrub. England, above the bridge at Kirby Lonsdale. Height 10 ft. to 12 ft. Stamens yellow; May.

⁂ ⚥ 121. *S.* PROPI'NQUA *Borr.* The nearly related, *or flat-leaved, upright, Mountain* Willow.

*Identification.* Borr. in Eng. Bot. Suppl., t. 2729.; Hook. Br. Fl., ed. 3.
*The Sexes.* The female is described in the Specific Character; and described and figured in *Eng. Bot. Suppl.*
*Engravings.* Eng. Bot. Suppl., t. 2729.; and our *fig.* 1472.

*Spec. Char., &c.* Upright. Young shoots pubescent with minute down. Leaves elliptical, obscurely crenate, nearly flat, nearly glabrous on both surfaces; veins slightly sunken; under surface pale green. Stipules small, vaulted, glanded. Ovary stalked, silky towards the point. Style longer than the notched stigmas. (*Borrer.*) An upright shrub. Britain. Height 4 ft. to 6 ft. Flowers yellow; May.

1472. *S.* propínqua.

⁂ 122. *S.* PETRÆ'A *Anders.* The Rock *Sallow, or* Willow.

*Identification.* First distinguished by Mr. G. Anderson. Borrer in Eng. Bot. Suppl., t. 2725., Hook. Br. Fl., ed. 3.
*The Sexes.* The female is described and figured in *Eng. Bot. Suppl.*, and in *Sal. Wob.*
*Engravings.* Sal. Wob., No. 97.; Eng. Bot. Suppl., t 2725.; and our *fig.* 97. in p. 808.

*Spec. Char., &c.* Upright. Young shoots densely hairy. Leaves oblong,

serrated, carinate, twisted, reticulated with deeply sunken veins; beneath, hairy, glaucous, at length pale green. Stipules large, half-heart-shaped, flattish, having few glands. Ovary stalked, naked, wrinkled towards the point. Style divided, longer than the cloven stigmas (*Borr.*) An upright shrub. Scotland, on the Breadalbane Mountains. Height 10 ft. to 15ft. Flowers yellow; May.

*S.* petræ'a is nearly allied to *S.* hírta *Smith Eng. Bot.* t. 1404.; and still more nearly, perhaps, to *S.* stylàris of Seringe *Monogr. des Saules de la Suisse*, p. 62.

† 123. *S.* AMMANN*IA'NA* Willd. (Sp. Pl., 4. p. 663.) is described in our first edition.

124. *S.* ATROVI'RENS *Forbes* (Sal. Wob., No. 108.; and our *fig.* 108. in p. 810.) is described in our first edition.

125. *S.* STRE'PIDA *Forbes* (Sal. Wob., No. 100.; and our *fig.* 100. in p. 809.) is described in our first edition.

126. *S.* SO'RDIDA *Forbes* (Sal. Wob., No. 101.; and our *fig.* 101. in p. 809.) is described in our first edition.

127. *S.* SCHLEICHER*IA'NA* Forbes (Sal. Wob., No. 98.; and our *fig.* 98. in p. 808.) is described in our first edition.

128. *S.* GRISONE'NSIS *Forbes* (Sal. Wob., No. 99.; and our *fig.* 99. in p. 808.) is described in our first edition.

## Group xviii. *Bicolòres* Borrer.

*Bushy Shrubs, with Leaves dark green above, and glaucous beneath.* Prin. sp. 131. 133, 134. and 142.

Stamens 2 to a flower. Ovaries silky. Leaves between obovate and lanceolate, glabrous, or nearly so; dark green on the upper surface, very glaucous on the under one. — Plants twiggy bushes. (*Hook.*)

129. *S.* TENU'IOR *Borrer* (Eng. Bot. Suppl., t. 2650.) is described in our first edition.

130. *S.* LAXIFLO'RA *Borr.* The loose-catkined Willow.

*Identification.* Borr. in Eng. Bot. Suppl., t. 2749; Hook. Br. Fl., ed. 3.
*The Sexes.* The female is described and figured in *Eng. Bot. Suppl.* The male plant is not known.
*Engraving.* Eng. Bot. Sup., t. 2749.; and our *fig.* 1473.

*Spec. Char., &c.* Upright. Young shoots slightly pubescent. Leaves glabrous, flat, broadly obovate, narrower to the base, slightly toothed, glaucescent beneath; upper leaves acute. Stipules small, concave. Flowers loosely disposed in the catkin. Ovary stalked, bluntish, glabrous in the lower part. Style as long as the linear divided stigmas. (*Borrer.*) A low, bushy, deciduous tree, or tree-like shrub. Britain, in various places, both in England and Scotland. Height 12 ft. to 20 ft. Flowers yellow; April and May.

1473. S. laxiflòra.

131. *S.* LAU'RINA *Smith.* The Laurel-*leaved, or shining dark-green,* Willow.

*Identification.* Smith Lin. Soc. Trans., 6. p. 122.; Hook. Br. Fl., ed. 2., p. 425.
*Synonymes.* *S.* bicolor *Smith Eng. Bot.* t. 1806.; *S.* arbúscula *Wahlenb.* var. *Koch Comm.* p. 45.
*The Sexes.* The female is described in *Eng. Fl.*, and figured in *Eng. Bot.* and *Sal. Wob.*
*Engravings.* Eng. Bot., t. 1806.; Sal. Wob., t. 38.; our *fig.* 1474.; and *fig.* 38. in p. 800.

1474. *S. laúrina.*

*Spec. Char., &c.* Leaves elliptic-oblong, acute, waved, and slightly serrated, nearly glabrous; glaucous beneath. Footstalks dilated at the base. Stipules pointed, serrated. Bracteas obtuse, hairy, and half as long as the densely downy, ovate, long-stalked ovary. (*Smith.*) A shrub or small tree. Britain, in various parts; growing plentifully in woods and thickets. Height 6 ft. to 12 ft. Flowers yellow; March and April.

132. *S.* PA`TENS *Forbes* (Sal. Wob., No. 39.; and our *fig.* 39. in p. 800.) is described in our first edition.

133. *S.* RADI`CANS *Smith.* The rooting-*branched* Willow.

*Identification.* Smith Fl. Brit., p. 1053.; Hook. Br. Fl., ed. 2., p. 428.; Eng. Bot. Suppl., t. 2701.
*Synonyme.* *S.* phylicifólia *Linn. Fl. Lapp.* No. 351. t. 8. f. d.
*The Sexes.* The female is described in *Eng. Fl.*, where Smith has noticed that he had not observed the catkins of the male. The female is figured in *Eng. Bot.* and *Sal. Wob.*
*Engravings.* Eng. Bot., t. 1958.; Sal. Wob., No. 46.; and our *fig.* 46. in p. 802.

*Spec. Char., &c.* Leaves elliptic-lanceolate, with wavy serratures, very glabrous; glaucous beneath. Stipules glandular on the inside. Ovary lanceolate, stalked, silky. Style twice the length of the stigmas. Branches trailing. (*Smith.*) A low, spreading, glabrous bush, whose long, recumbent, brown or purplish branches take root as they extend in every direction. Scotland, on the Breadalbane Mountains. Height 1 ft. to 2 ft. Flowers yellow; May.

134. *S.* BORRER*IA`NA* Smith. Borrer's, *or the dark upright,* Willow.

*Identification.* Smith Eng. Fl., 4. p. 174.; Eng. Bot. Suppl., t. 2619.; Hook. Br. Fl., ed. 3.
*The Sexes.* The male is described in *Eng. Fl.* and *Eng. Bot. Suppl.*, and figured in *Sal. Wob.* and *Eng. Bot. Suppl.* Mr. W. Wilson and Sir W. J. Hooker have found the female at Killin, in Breadalbane. (*Hook. Br. Fl.*, ed. 2.)
*Engravings.* Sal. Wob., No. 45.; Eng. Bot. Suppl., t. 2619.; our *fig.* 1475.; and *fig.* 45. in p. 802.

1475. *S. Borreridna.*

*Spec. Char., &c.* Branches erect. Leaves lanceolate, serrated with shallow nearly even serratures, very glabrous; glaucous beneath. Stipules lanceolate, small. Bracteas (scales) acute, shaggy. (*Smith.*) A much-branched shrub, decumbent at the base only. Scotland, in Highland mountain valleys. Height 6 ft. to 10 ft. Flowers yellow; April.

135. *S.* DAVALL*IA`NA* Smith (Eng. Bot. Suppl., t. 2701.; Sal. Wob., No. 47.; and our *fig.* 47. in p. 802.) is described in our first edition.

136. *S.* TE'TRAPLA *Smith* (Eng. Bot. Suppl., t. 2702.; Sal. Wob., No. 49.; and our *fig.* 49. in p. 802.) is described in our first edition.

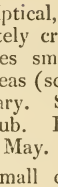
137. *S.* RAMIFU'SCA *Forbes, ? Anders.* (Sal. Wob., No. 53.; and our *fig.* 53. in p. 803.) is described in our first edition.

138. *S.* FORBES*IA`NA.* Forbes's Willow (Sal. Wob., No. 51.; and our *fig.* 51. in p. 803.) is described in our first edition.

139. *S.* WEIGEL*IA`NA* Borr. Weigel's Willow.

*Identification.* Borr. in Eng. Bot. Suppl., t. 2656.; Hook. Br. Fl., ed. 3., p. 434.
*Synonyme.* *S.* Wulfenïàna Smith Eng. Fl. 4. p. 176.
*The Sexes.* Both are figured in *Eng. Bot. Suppl.*; the male in *Sal. Wob.*, as that of *S.* Wulfenïàna.
*Engravings.* Eng. Bot. Suppl., t. 2656.; our *fig.* 1475.; and *fig.* 48. in p. 802.

*Spec. Char., &c.* Leaves elliptical, rhomboidal, or almost round, with a short point, obsoletely crenate; glabrous on both sides, glaucous beneath. Stipules small. Catkins on short stalks. Floral leaves small. Bracteas (scales) oblong, hairy, longer than the hairy stalk of the ovary. Style longer than the stigmas. (*Borrer.*) An upright shrub. Britain. Height 10 ft. to 12 ft. Flowers yellow; April and May.

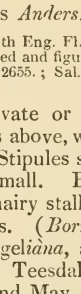

1476. *S. Weigeliàna.*

A desirable species for small collections, on account of its roundish foliage.

### 140. *S.* NI'TENS *Anders.* The glittering-*leaved* Willow.

*Identification.* Anders. MS.; Smith Eng. Fl., 4. p. 175.; Hook. Br. Fl., ed. 2., p. 426.
*The Sexes.* Both sexes are described and figured in *Eng. Bot. Suppl.*
*Engravings.* Eng. Bot. Suppl., t. 2655.; Sal. Wob., No. 44.; *fig.* 1477.; and *fig.* 44. in p. 801.

*Spec. Char., &c.* Leaves ovate or elliptical, acute, slightly serrated; nearly glabrous above, with sunk veins; glabrous and glaucous beneath. Stipules small. Catkins on short stalks. Floral leaves small. Bracteas (scales) oblong, hairy, longer than the hairy stalks of the ovary. Style longer than the stigmas. (*Borr.*) An upright shrub, nearly allied to *S.* Weigeliàna, and more nearly to *S.* Crowe*à*na. England, in Teesdale. Height 5 ft. to 10 ft. Flowers yellow; April and May.


1477. *S. nitens.*

### 141. *S.* CROWE*A'NA* Smith. Crowe's Willow.

*Identification.* Smith Eng. Bot., t. 1146.; Eng. Fl., 4. p. 192.; Hook. Br., ed. 3.
*Synonymes.* *S.* arbúscula *Wahlenb.* var. *Koch Comm.* p. 45.; *S.* hùmilis *Schl.* is cited in *Sal. Wob.* as the female of *S.* Crowe*à*na Smith; ? *S.* heterophýlla *Host.*
*The Sexes.* Both sexes are described in *Eng. Bot.*, and figured in *Sal. Wob.* Mr. Borrer deems the case of the combination of the filaments to be one monstrous in the species, rather than innate and characteristic.
*Engravings.* Eng Bot., t. 1146.; Sal. Wob., No. 52.; and our *fig.* 52. in. p. 803.

*Spec. Char., &c.* Filaments combined below. Leaves elliptical, slightly serrated, quite glabrous, glaucous beneath. (*Smith.*) A bushy shrub, with many stout, irregularly spreading, glabrous, leafy, brittle, brownish yellow branches. England, in swampy meadows and thickets. Height 5 ft. to 10 ft, Flowers yellow; April and May.

This *S*àlix, when covered with male blossoms, is amongst the most handsome of the genus; nor are the leaves destitute of beauty.

### 142. *S.* BI'COLOR *Ehrh.* The two-coloured Willow.

*Identification.* Ehrh. Arb., 118.; Hook. Br. Fl., ed. 2., p. 427.; ? Hayne Abbild., p 238.
*Synonymes.* *S.* tenuifòlia *Smith Eng. Bot.*, t. 2186., as to the figure; *S.* floribúnda *Forbes.*
*The Sexes.* The male is described in *Sal. Wob.*, and figured in *Eng. Bot.* and *Sal. Wob.*; some notice of what Mr. Borrer deems the female is given in *Hook. Br. Fl.*, ed. 2.
*Engravings.* Eng. Bot., t. 2186.; Sal. Wob., No. 54.; and our *fig* 54. in p. 803.

*Spec. Char., &c.* Leaves elliptical; green and shining above, glabrous and glaucous beneath; serrated, ending in oblique points. Stipules crescent-shaped, serrated. Catkins of the male copious, bright yellow. Filaments slightly bearded at the base. (*Sal. Wob.*) A bushy spreading shrub, with short yellow branches, slightly villous when young; the older ones rather a yellowish green, quite glabrous. Britain. Height 6 ft. to 8 ft. Flowers yellow; April, and a second time in July.

### 143. *S.* PHILLYREIFO'LIA *Borrer.* The Phillyrea-leaved Willow.

*Identification.* Borrer in Eng Bot. Suppl., t. 2660.; Hook. Br. Fl., ed. 2. p. 417.
*The Sexes.* Both sexes are described and figured in *Eng. Bot. Suppl.*, the female in the fruit-bearing state.
*Engraving.* Eng. Bot. Suppl., t. 2660.; and our *fig.* 1478.

*Spec. Char., &c.* Leaves elliptic-lanceolate, acute at each end, strongly serrated, glabrous on both surfaces, glaucous on the under one. Stipules

small. Young shoots pubescent. Bracteas (scales) oblong, hairy, longer than the glabrous stalk of the glabrous ovary. Sty'e as long as the stigmas. In the arrangement of the kinds, this one may stand between *S.* bícolor and *S.* Dickson*iàna*, in both of which the leaves are for the most part obsoletely serrated, and of a figure approaching to obovate with a point. (*Borrer.*) An upright much-branched shrub. Highland valleys of Scotland. Height 4 ft to 5 ft. Flowers yellow; April.

1478. *S. phillyreifòlia.*

144. *S.* DICKSON*IA'NA* Smith (Eng. Bot., t. 1390.; Sal. Wob., No. 55.; and our *fig.* 55. in p. 803.) is described in our first edition.

## Group xix. *Vacciniifòliæ* Borrer.

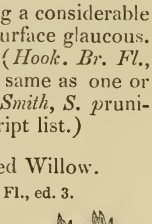
*Small, and generally procumbent, Shrubs.* Prin. sp. 145. and 149.

Stamens 2 to a flower. Ovary sessile, downy. Leaves bearing a considerable resemblance to those of a *V*accínium; opaque; the under surface glaucous. — Plants, small shrubs, usually procumbent, rarely erect. (*Hook. Br. Fl.*, ed. 2., adapted.) It is probable that *S.* arbúscula *L.* is the same as one or more of the four kinds, *S.* vacciniifòlia *Walker*, *S.* carinàta *Smith*, *S.* prunifòlia *Smith*, and *S.* venulòsa *Smith*. (*Borrer*, in his manuscript list.)

145. *S.* VACCINIIFO'LIA *Walker*. The Vaccinium-leaved Willow.

*Identification.* Walker's Essay on Nat. Hist.; Eng. Fl., 4. p. 194.; Hook. Br. Fl., ed. 3.
*Synonyme.* *S.* prunifòlia, part of, *Koch Comm.* p. 59.
*The Sexes.* Both sexes are figured in *Eng. Bot.* and *Sal. Wob.*
*Engravings.* Eng. Bot., t. 2341.; Sal. Wob., No. 57.; our *fig.* 1479.; and *fig.* 57. in p. 803.

*Spec. Char., &c.* Leaves lanceolate-ovate, serrated; glabrous and even above, glaucous and silky beneath. Capsules ovate, silky. Stems decumbent. (*Smith.*) A low decumbent shrub, very distinct from *S.* prunifòlia, of a much more humble stature, with decumbent, or trailing, long and slender branches, silky when young, though otherwise glabrous. Scotland, on Highland mountains. Height 1 ft. to 2 ft. Flowers yellow; April and May.


1479. *S. vacciniifòlia.*

146. *S.* CARINA'TA *Smith* (Eng. Bot., t. 1363.; Sal. Wob., No. 59.; and our *fig.* 59. in p. 803.) is described in our first edition.

147. *S.* PRUNIFO'LIA *Smith* (Eng. Bot., t. 1361.; Sal. Wob., No. 56.; and our *fig.* 56. in p. 803.) is described in our first edition.

148. *S.* VENULO'SA *Smith* (Eng. Bot., t. 1362.; Sal. Wob., No. 56.; and our *fig.* 58. in p. 803.) is described in our first edition.

149. *S.* CÆ'SIA *Villars*. The grey-*leaved Willow.*

*Identification.* Villars Dauph., 3. 768.; Smith in Rees's Cyclo., No. 80.; Koch Comm., p. 59.
*Synonymes.* *S.* myrtillòides *Willd. Sp. Pl* 4. p. 686.; *S* prostràta *Ehrh. Pl. Select.* p. 159.
*The Sexes.* The female is described and figured in *Sal. Wob.*
*Engravings.* Villars Dauph., 3. t. 50. f. 11.; Sal. Wob., No. 66.; and our *fig.* 66. in p. 804.

*Spec. Char., &c.* Leaves elliptic or lanceolate, acuminate, glabrous, not shining, entire, and revolute at the edge. Catkin upon a short leafy twiglet. Capsule ovate-conical, tomentose, seemingly sessile, eventually having a very short stalk. Gland reaching as high as the base of the capsule. Style shortish. Stigmas ovate-oblong, entire, and bifid (*Koch.*) — A low straggling shrub Alps of Dauphiné; and in Savoy, upon the mountain Enzeindog. Height 3 ft. to 4 ft. Introduced in 1824. Flowers yellow; May, and again in August.

## Group xx. *Myrtillòides* Borrer.

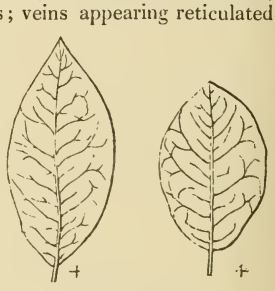
*Small Bilberry-like Shrubs, not Natives of Britain.* Prin. sp. 150.

This group consists of exotic kinds, and, therefore, does not appear in *Hook. Br. Fl.*; and, consequently, we cannot quote characteristics thence. In *S.* myrtillòides L., we believe that the epithet was meant to express a likeness in the foliage to that of *V*accínium Myrtíllus *L.*; and we suppose that this likeness appertains to each of the kinds of which Mr. Borrer has constituted his group Myrtillòides.

150. *S.* MYRTILLÒI'DES *L.* The Myrtillus-like, *or Bilberry-leaved*, Willow.

*Identification.* Lin. Sp. Pl., 1446.; Wahl. Fl. Lapp., p. 267.; Koch Comm., p. 52.
*Synonyme.* *S* élegans *Besser En. Pl. Volhyn.* p. 77. (*Koch.*)
*The Sexes.* The female is described in *Rees's Cyclo.*, and the male partly so.
*Engravings.* Lin. Fl. Lapp., ed. 2., t. 8. f. *i. k.*; and our *fig.* 1480.

*Spec. Char., &c.* Leaves very various in form, ovate, subcordate at the base, oblong, or lanceolate; entire, opaque, glabrous; veins appearing reticulated beneath. Stipules half-ovate. Fruit-bearing catkin (? catkin of the female in any state) borne on a leafy twiglet. Bracteas (scales) glabrous or ciliated. Capsules (? or rather ovaries) ovate lanceolate, glabrous, upon a stalk more than four times as long as the gland. Style short. Stigmas ovate, notched. (*Koch.*) The flowers of the female are disposed in lax cylindrical catkins. (*Smith.*) A low shrub. Carpathia, Poland, Livonia, Volhynia, and through Russia, Sweden, and Lapland. Height 2 ft. to 4 ft. Introduced in 1772. Flowers yellow; April and May.



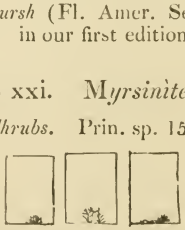
1480. *S.* myrtillòides.

151. *S.* PEDICELLA'RIS *Pursh* (Fl. Amer. Sept., 2. p. 611.) is described in our first edition.

152. *S.* PLANIFO'LIA *Pursh* (Fl. Amer. Sept., 2. p. 611.) is described in our first edition.

## Group xxi. *Myrsinìtes* Borrer.

*Small bushy Shrubs.* Prin. sp. 153. 155. and 159.

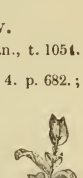


Stamens 2 to a flower. Ovaries downy. Leaves oval or broadly elliptical, serrated, small, glossy, rigid. — Plants small and bushy. (*Hook. Br. Fl.*, adapted.) It seems to be the case that the epithet *M*yrsinìtes in *S. M*yrsi-

nites *L.* has been intended to imply a likeness in the foliage of that kind to that of the *V*accínium *M*yrsinìtes ; and it may be supposed that this character obtains more or less in all the kinds of the group.

### ♃ 153. *S. M*YRSINI`TES *L.* The Whortleberry-*leaved* Willow.

*Identification.* Lin., cited by Borrer in Eng. Bot. Suppl., t. 2753., the text; Fl. Dan., t. 1054. (*Smith.*)
*Synonymes.* *S. M*yrsinìtes β, *Smith Eng. Fl.* 4. p. 195.; *S. a*rbutifòlia *Willd. Sp. Pl.* 4. p. 682.; probably *S.* Macnab*ìàna* Macgillivray in Jameson's *Edinb. Phil. Jour.*, Oct. 1830.
*The Sexes.* It is implied in the Spec. Char., &c., that the female is known.
*Engraving.* Fl. Dan., t. 1054. (*Smith*); and our *fig.* 1481.


1481.

*Spec. Char. &c.* This has, like *S. b*etulifòlia, short catkins, and distinctly serrated leaves; but these are more acute, and of an ovate-lanceolate figure; and the long style seems to afford a distinctive character. (*Borrer.*) A low shrub. Scottish mountains. Height 6 in. to 1 ft. Flowers yellow ; April and May.

Stems and leaves like those of *B*étula nàna, very dark, and almost black when dry.

### ♃ 154. *S.* BETULIFO`LIA *Forster* (Sal. Wob., No. 60.; and *fig.* 60. in p. 803.) is described in our first edition.

### ♃ 155. *S.* PROCU`MBENS *Forbes.* The procumbent Willow.

*Identification.* Forbes in Sal. Wob., No. 61.; Hook. Br. Fl., ed. 2., p. 429.
*Synonymes.* *S.* læ`vis *Hook. Br. Fl.*, ed. 1., p. 432.; *S.* retùsa *Wither. Bot. Arr.* ed. 4., 2. p. 49.
*The Sexes.* The female is described and figured in *Eng. Bot. Suppl.* and *Sal. Wob.* The male plant has not come under our notice. (*Borrer.*)
*Engravings.* Eng. Bot. Suppl., t. 2753.; Sal. Wob., No. 61.; and our *fig.* 61. in p. 803.

*Spec. Char., &c.* Branches diverging. Leaves oval, minutely serrated, recurved, bright green and shining on both surfaces. Catkins elongated, thick, cylindrical. Ovary nearly sessile, tapering, obsoletely quadrangular. Style short, deeply cloven. Stigmas spreading, bifid. (*Borrer.*) A low procumbent shrub, extending along the ground, with greenish brown, pubescent, round, shortish branches. Highlands of Scotland. Height 6 in. to 1 ft. Flowers yellow ; April and May.

### ♃ 156. *S.* RETU`SA *L.* The retuse-*leaved* Willow.

*Identification.* Lin. Sp. Pl., 1445.; Willd. Sp. Pl., 4. p. 684.; Hayne Abbild., p. 234.
*Synonyme.* *S.* serpyllifòlia *Jacq. Austr.* t. 298.
*The Sexes.* Both sexes are described in *Rees's Cyclo.*, and thence in *Sal. Wob.*, and below; and both are figured in *Hayne Abbild.*: the male is figured in *Sal. Wob.*
*Engravings.* Jacq. Austr., t. 298.; Sal. Wob., No. 139.; our *fig.* 1482.; and *fig.* 139. in p. 818.

1482. *S.* retùsa.

*Spec. Char., &c.* Leaves obovate, entire, glabrous, shining above. Catkins of the female oblong, of few flowers. Bracteas (scales) the length of the oblong smooth ovary. (*Smith.*) A trailing shrub. Alps of Germany, Switzerland, France, and Italy. Height 6 in. to 1 ft. Introduced in 1763. Flowers yellow ; May.

### ♃ 157. *S.* KITAIBEL*IA`NA* Willd. (Sal. Wob., No. 64.; and our *fig.* 64. in p. 804.) is described in our first edition.

### ♃ 158. *S.* U`VA-U`RSI *Pursh* (Sal. Wob., No. 151.; and our *fig.* 151. in p. 818.) is described in our first edition.

### ♃ 159. *S.* SERPYLLIFO`LIA *Scop.* The Wild-Thyme-leaved Willow.

*Identification.* Scop. Carn., No. 1207.; Willd. Sp. Pl., 4. p. 684.; Hayne Abbild., 325.
*Synonyme.* *S.* retùsa *Koch γ Koch Comm.* p. 63.
*The Sexes.* The male is figured in *Sal. Wob.*, the female in *Hayne Abbild.*
*Engravings.* Scop. Carn., t. 61.; Sal. Wob., No. 65.; our *figs.* 1483, 1484.; and *fig.* 65. in p. 804.

1481. *S.* serpyllifòlia.

*Spec. Char., &c.* Leaves ovate, or ovate-lanceolate, acute, entire, glabrous, shining above. Catkins oblong, of few flowers. Capsules elliptic, glabrous. Stigmas sessile. (*Smith.*) A very diminutive shrub. High mountains of France, Italy, and Switzerland. Height 1 in. to 2 in. Introd. 1818. Flowers yellow ; April and May.

1483.

✱ 160. *S.* CORDIFO'LIA *Pursh* (Sal. Wob., No. 143., a leaf; and *fig.* 143. in p. 818.) is described in our first edition.

## Group xxii. *Herbàceæ* Borrer.

*Very low Shrubs, scarcely rising an inch above the Ground.* Prin. sp. 161. and 162.

There are only two species in this group, the characteristics of which will be found in their specific characters.

✱ 161. *S.* HERBA'CEA *L.* The herbaceous-*looking* Willow.

*Identification.* Lin. Sp. Pl., 2445.; Eng. Fl., 4. p. 199.; Hook. Br. Fl., ed. 3.
*The Sexes.* Both sexes are described in *Eng. Fl.* and figured in *Sal. Wob.*, *Hayne Abbild.*, and *Host Sal. Austr.*; in *Eng. Bot.*, the female in fruit and flower, and bractea (scale) of the male. Both sexes were living, in 1836, in the Twickenham Botanic Garden.
*Engravings.* Eng. Bot., t. 1907.; Sal. Wob., No. 62.; and Host Sal. Austr., 1. t. 104.; our *fig.* 1485.; and *fig.* 62. in p. 803.

*Spec. Char., &c.* Leaves orbicular, serrated, reticulated with veins; very glabrous and shining on both sides. Ovary stalked, ovate-lanceolate, glabrous. (*Smith.*) A diminutive shrub. Britain, on the Welsh and Highland mountains. Height 1 in. to 3 in. in a wild state, but much higher in a state of culture. Flowers yellow; June.

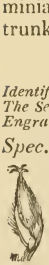
1485. *S.* herbàcea.

*S.* herbàcea is the least of British willows, and, according to Sir J. E. Smith, the least of all shrubs. Dr. Clarke, in his *Scandinavia*, calls it a perfect tree in miniature; so small, that it may be taken up, and root, trunk, and branches spread out in a small pocket-book.

162. *S.* POLA'RIS *Wahlenb.* The Polar Willow.

*Identification.* Wahlenb. Suec., p. 636.; Fl. Lapp., p. 261.; Koch Comm., p. 64.
*The Sexes.* The female is described and figured in *Sal. Wob.*
*Engravings.* Wahl. Fl. Lapp., t. 13. f. 1.; our *figs.* 1486. and 1487.; and *fig.* 63. in p. 803.

*Spec. Char., &c.* Leaves ovate, very obtuse, nearly entire, glabrous. Catkins of few flowers. Stem filiform, or thread-shaped. (*Wahlenberg.*) A diminutive shrub. Lapland. Height 1 in. to 3 in. Introduced in 1820. Flowers yellow; April, and again in July.



1486.

1487. *S.* polàris

The branches and leaves of this species are more tender during the spring than those of *S.* herbàcea; the stem is almost filiform.

## Group xxiii. *Hastàtæ* Borrer.

*Low Shrubs, with very broad Leaves, and exceedingly shaggy and silky Catkins.* (Hook Br. Fl.) Prin. sp. 163. and 164.

✱ 163. *S.* HASTA'TA *L.* The halberd-*leaved* Willow.

*Identification.* Lin. Sp. Pl., 1443.; Fl. Lapp., ed. 2., 293.; Willd. Sp. Pl., 4. p. 664.
*The Sexes.* The female is described and figured in *Sal. Wob.*
*Engravings.* Lin. Fl. Lapp., ed. 2. t. 8. f. 9.; Sal. Wob., No. 35.; our *fig.* 1488.; and *fig.* 35. in p. 799.

*Spec. Char., &c.* Leaves ovate, acute, serrated, undulated, crackling, glabrous; heart-shaped at the base, glaucous beneath. Stipules unequally

heart-shaped, longer than the broad footstalks. Catkins very woolly. Ovary lanceolate, glabrous, on a short stalk. (*Smith.*) A tall shrub, or small spreading tree. Lapland, Sweden, and in Britain but rare. Height 5 ft. to 10 ft. Flowers yellow; April and May.

1488. *S.* hastàta.

*Varieties.*

- S. *h.* 2 *serrulàta.* *S.* hastàta *Willd. Sp. Pl.* iv. p. 664. — Leaves broadly ovate, heart-shaped at the base.
- S. *h.* 3 *malifòlia.* *S.* malifòlia *Smith Eng. Bot.* t. 1617. (For a leaf, see our *fig.* 36. in p. 739.) — Leaves elliptic oblong, toothed, wavy, thin and crackling, very glabrous.
- ? S. *h.* 4 *arbúscula.* *S.* arbúscula *Wahl. Fl. Dan.* t. 1055., *Forbes* in *Sal. Wob.* No. 138., where there are a figure and description of the female plant (see our *fig.* 1489., also *fig.* 138. in p. 818.); *S.* arbúscula β *Lin. Fl. Suec.* p. 348.; *S.* arbúscula γ *Lin. Sp. Pl.* p. 1545., *Fl. Lapp.* t. 8. f. *m.* — Leaves lanceolate, serrated with distant, small, and appressed teeth, or almost entire.

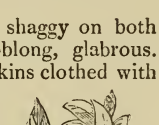
1489. *S.* h. arbúscula.

### 164. *S.* LANA'TA *L.* The woolly-*leaved* Willow.

*Identification.* Lin. Sp. Pl., 1446.; Eng. Fl., 4. p. 205.; Hook. Br. Fl., ed. 2.
*The Sexes.* Both sexes are described and figured in *Eng. Bot. Suppl.*, t. 2624.: both sexes of *S.* chrysánthos *Fl. Dan.* are figured in *Sal. Wob.*
*Engravings.* Lin. Fl. Lapp., ed. 2., t. 8. f. x., t. 7. f. 7.; Eng. Bot. Suppl., t. 2624.; our *fig.* 1490.: and *fig.* 71. No. 2. in p. 805.

*Spec. Char., &c.* Leaves roundish ovate, pointed, entire; shaggy on both surfaces; glaucous on the under one. Ovary sessile, oblong, glabrous. Styles four times as long as the blunt divided stigmas. Catkins clothed with long, yellow, silky hairs. Ovary nearly sessile, lanceolate, longer than the style. Stigmas undivided. (*Hook.*) A low shrub. Scotland, on the Clova Mountains. Height 3 ft. to 4 ft. Flowers yellow; May.

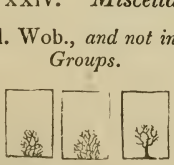
The splendid golden catkins at the ends of the young shoots light up, as it were, the whole bush, and are accompanied by the young foliage, sparkling with gold and silver. It yields, also, more honey than any other salix. Grafted standard high, it would make a delightful little spring-flowering tree for suburban gardens.



1490. *S.* lanàta.

## Group xxiv. *Miscellàneæ* A.

*Kinds of Sàlix described in* Sal. Wob., *and not included in any of the preceding Groups.*



165. *S.* ÆGYPTI'ACA *L.* (Sal. Wob., No. 146.; and our *fig.* 146. in p. 818.) is described in our first edition.

166. *S.* ALPI'NA *Forbes* (Sal. Wob., No. 149.; and our *fig.* 149. in p. 818.) is described in our first edition.

✱ 167. *S.* BERBERIFO'LIA *Pall.* The Berberry-leaved Willow.

*Identification.* Pall. Fl. Ross., 1. p. 2. 84 t. 82.; Willd. Sp. Pl., 4. p. 683.
*The Sexes.* The male is figured in *Sal. Wob.*; the female is noticed in the Specific Character.
*Engravings.* Sal. Wob., No. 140.; our *fig.* 1491.; and *fig.* 140. in p. 818.

1491. *S. berberifòlia.*

*Spec. Char., &c.* Leaves obovate, bluntish, with deep tooth-like serratures, glabrous, shining, ribbed, and reticulated with veins on both sides. Capsules ovate, glabrous. (*Smith.*) A low shrub. Dauria, in rocky places on the loftiest mountains; growing, along with *R*hododéndron chrysánthum, near the limits of perpetual snow. Height 6 in. to 2 ft. Introduced in 1824. Flowers yellow; May.

✱ 168. *S.* TETRASPE'RMA *Roxb.* (Sal. Wob., No. 31.; and *fig.* 31. in p. 797.) is described in our first edition.

✱ 169. *S.* ULMIFO'LIA *Forbes* (Sal. Wob., No. 158.) is described in our first edition.

✱ 170. *S.* VILLO'SA *Forbes* (Sal. Wob., t. 92.; and *fig.* 92. in p. 807.) is described in our first edition.

## Group xxv. *Miscellàneæ* B.

*Kinds of Sàlix introduced, and of many of which there are Plants at Messrs. Loddiges's, but which we have not been able to refer to any of the preceding Groups.*

*S.* albéscens *Schl.*, *S.* alnifòlia *Host*, *S.* Ammann*iàna* Willd., *S.* angustàta *Pursh*, *S.* angustifòlia *Willd.*, *S.* *b*etùlina *Host*, *S.* candídula *Host*, *S.* canéscens *Lodd.*, *S.* cerasifòlia *Schl.*, *S.* chrysánthos *Œd.*, *S.* cinnamòmea *Schl.*, *S.* clethræfòlia *Schl.*, *S.* conífera *Wangenh.*, *S.* corúscans *Willd.*, *S.* cydoniæfòlia *Schl.*, *S.* dùbia *Hort.*, *S.* eriántha *Schl.*, *S.* *f*agifòlia *Waldst. et Kit.*, *S.* finmárchica *Lodd. Cat.*, *S.* folio!òsa *Afzel.*, *S.* formòsa *Willd.*, *S.* fuscàta *Pursh*, *S.* glabràta *Schl.*, *S.* heterophýlla *Deb.*, *S.* hùmilis *Dec.*, *S.* Jacquíni*i* Host, *S.* lívida *Wahlenb.*, *S.* longifòlia *Mühlenb.*, *S.* *m*espilifòlia *Schl.*, *S.* murìna *Schl.*, *S.* *m*yricoìdes *Mühlenb.*, *S.* nervòsa *Schl.*, *S.* obtùsa *Link*, *S.* obtusifòlia *Willd.*, *S.* obtùsi-serràta *Schl.*, *S.* palléscens *Schl.*, *S.* paludòsa *Lk.*, *S.* *p*ersicæfòlia *Hort.*, *S.* pyrenàica *Gouan*, *S.* *p*yrifòlia *Schl.*, *S.* recurvàta *Pursh*, *S.* *s*alviæfòlia *Link*, *S.* Schrader*iàna* Willd., *S.* septentrionàlis *Host*, *S.* silesìaca *Willd.*, *S.* Stark*eàna* Willd., *S.* tetrándra *Host*. *S.* *t*hymelæòides *Host*, *S.* Trevirà*na* Lk., *S.* velutìna *Willd.*, *S.* versifòlia *Spreng.*, *S.* *v*acciniòides *Host*, *S.* Waldstein*iàna* Willd., *S.* Wulfen*iàna* Willd.

## Appendix.

*Kinds of Sàlix described or recorded in Botanical Works, but not introduced into Britain, or not known by these Names in British Gardens.* Descriptions and reference to figures are given in our first edition, but here we insert only the names.

*S.* árctica *R. Br.*, *S.* desertòrum *Rich.*, *S.* rostràta *Rich.*, *S.* cineráscens *Link*, *S.* grandifòlia *Ser.*, *S.* divaricàta *Pall.*, *S.* hirsùta *Thunb.*, *S.* pedicellàta *Desf.*, *S.* íntegra *Thunb.*, *S.* japónica *Thunb.*, *S.* mucronàta *Thunb.*, *S.* *r*hamnifòlia *Pall.*, *S.* Seringe*àna* Gaudin; *S.* serótina *Pall.*

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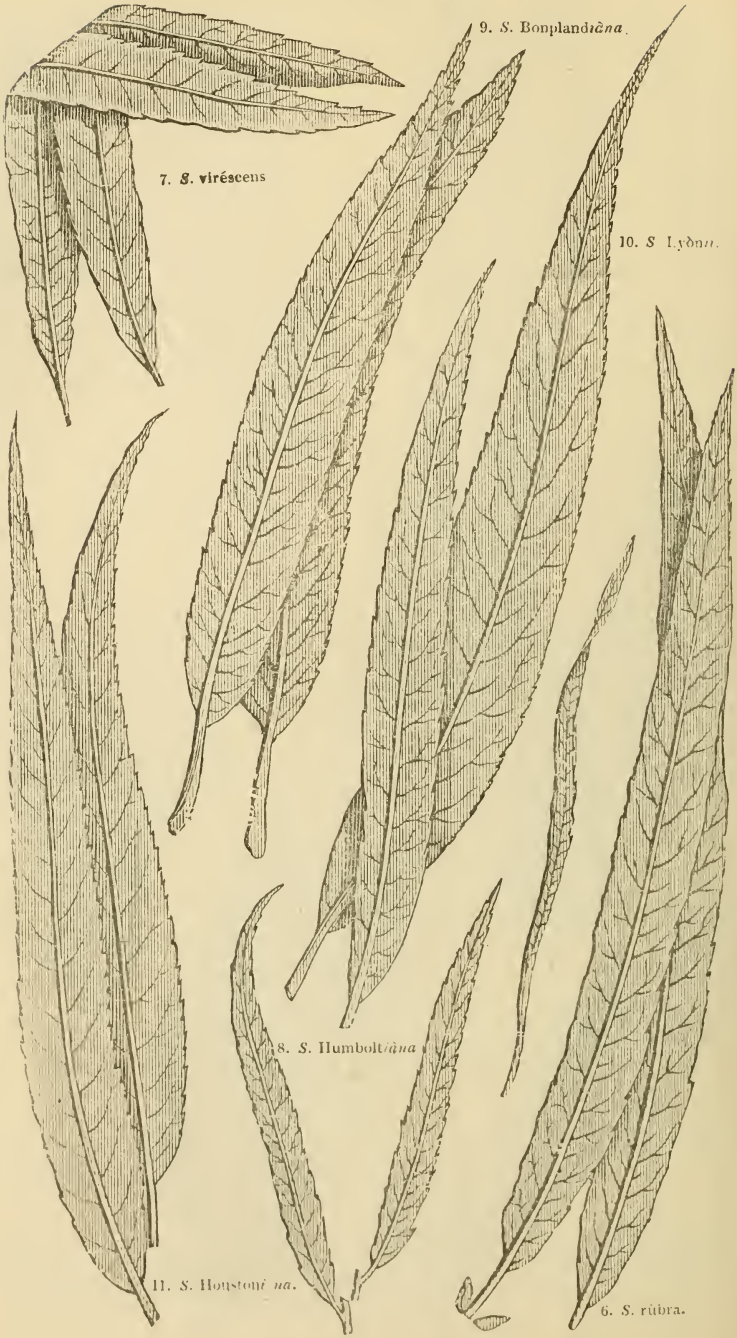
*The plates, which form pages* 791. to 818., contain figures of leaves, of the natural size, from the engravings of willows given in the *Salictum Woburnense*; and against each leaf, or pair of leaves, we have placed the same number, and the same name, which are given in the *Salictum*.

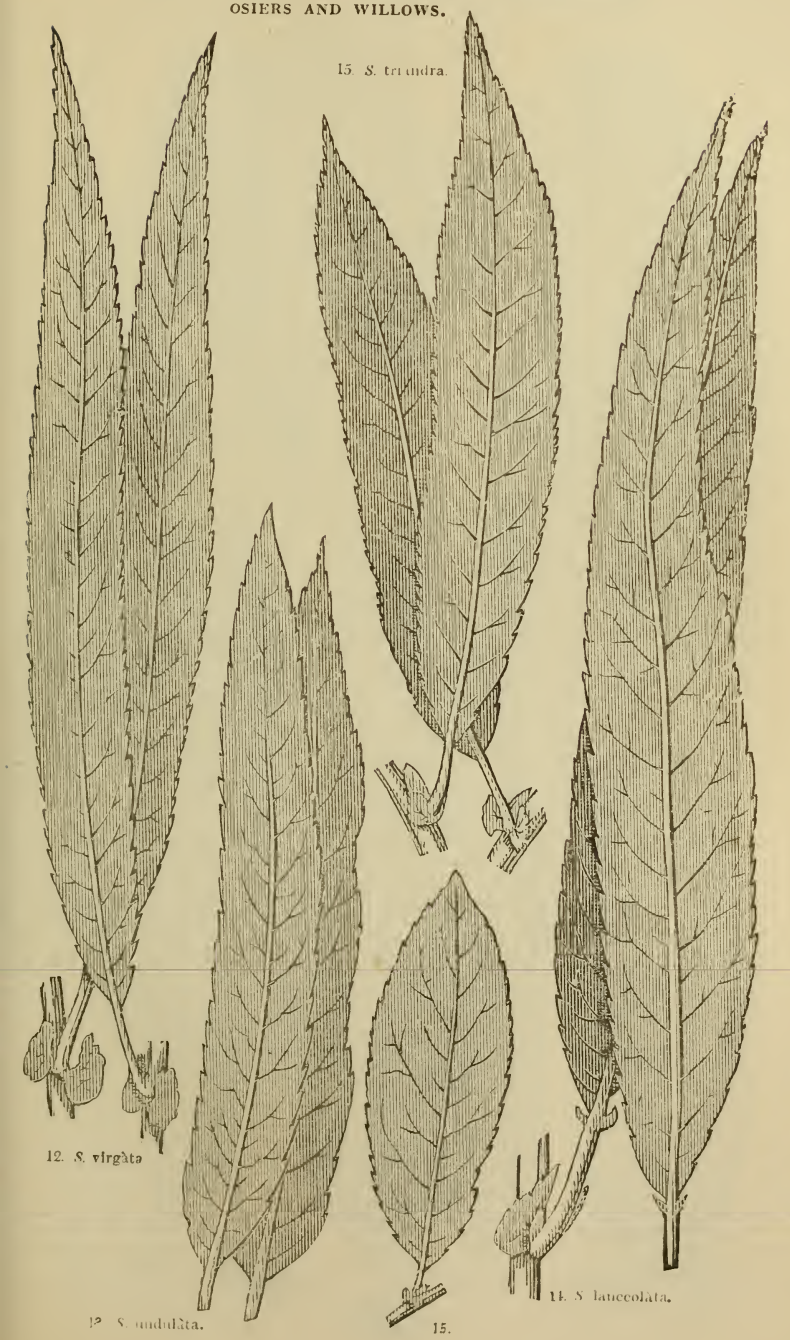
OSIERS AND WILLOWS.

OSIERS AND WILLOWS.

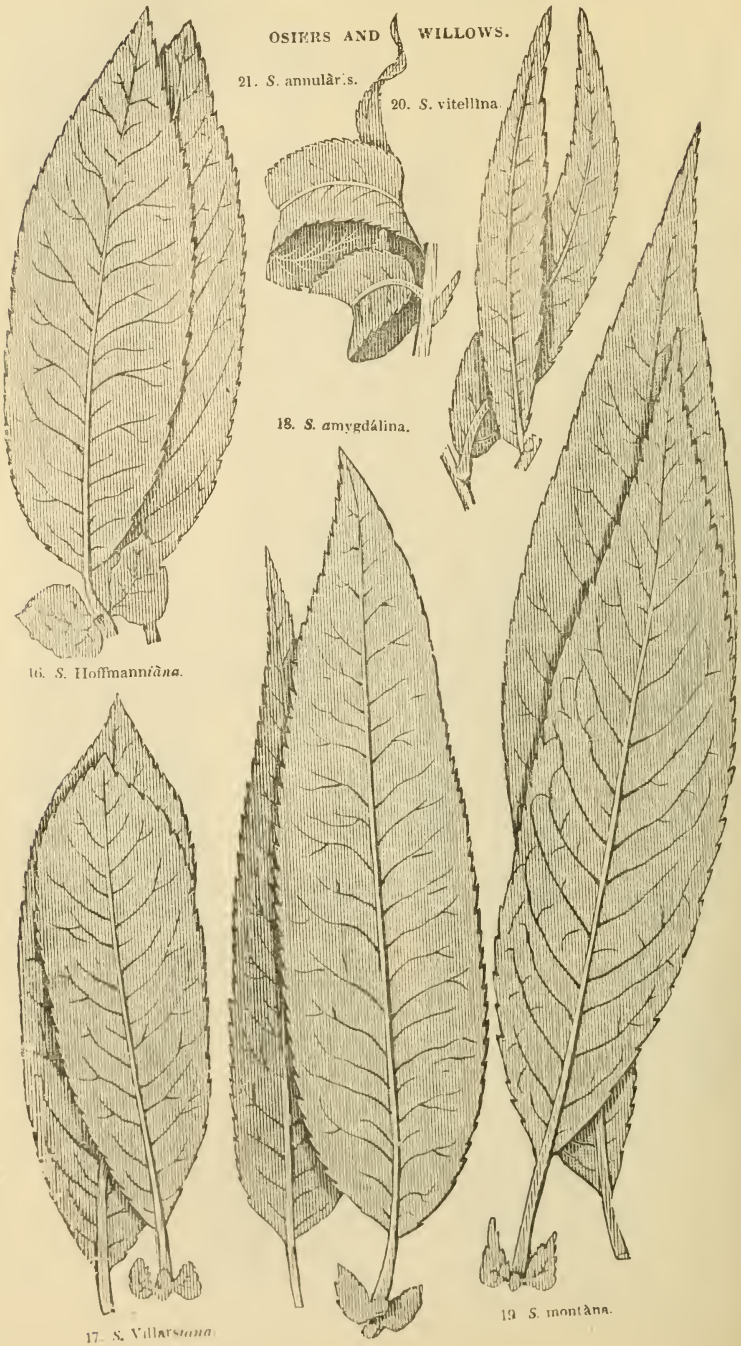


§ i. continued.—*Adult Leaves serrated, nearly smooth.*

OSIERS AND WILLOWS.



§ i. continued.—*Adult Leaves serrated, nearly smooth.*

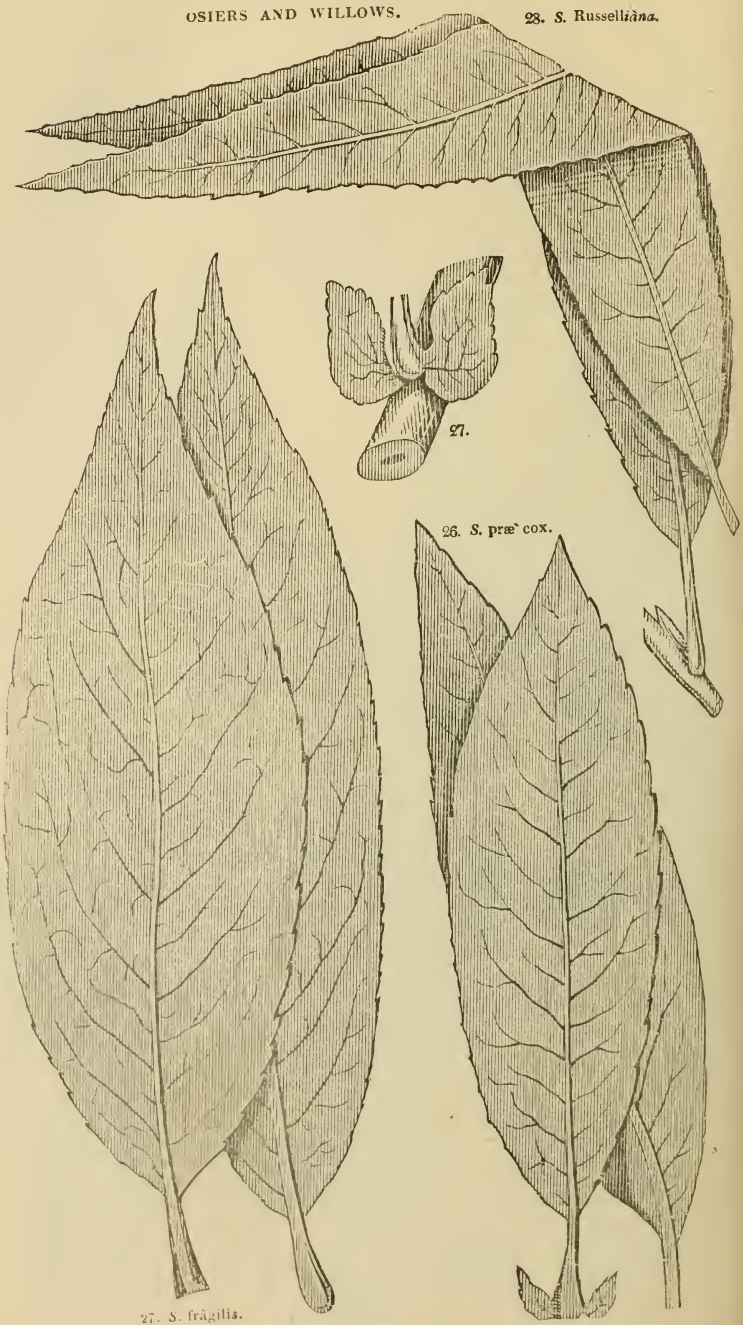


§ i. continued.—*Adult Leaves serrated, nearly smooth.*

OSIERS AND WILLOWS.

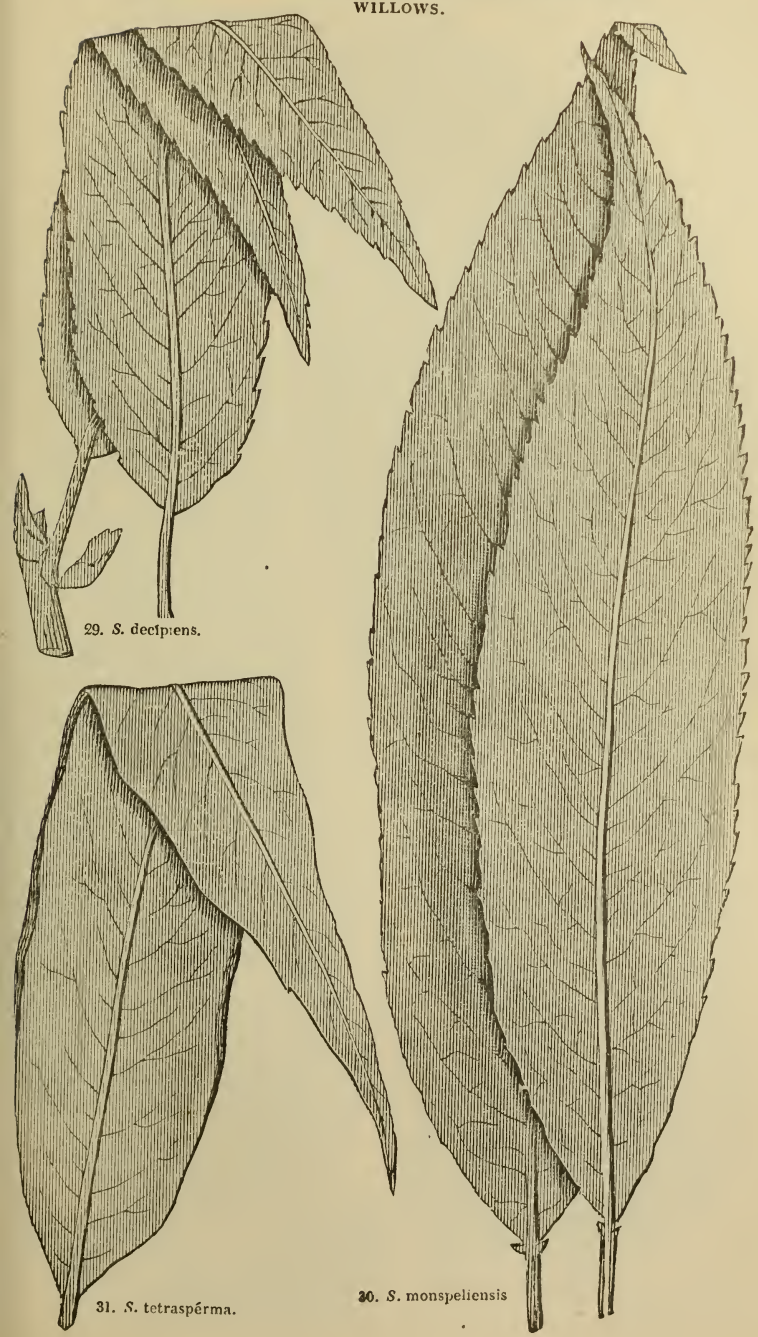
§ i. continued.—*Adult Leaves serrated, nearly smooth.*

OSIERS AND WILLOWS.



§ i. continued.—*Adult Leaves serrated, nearly smooth.*

WILLOWS.



29. *S.* decipiens.

30. *S.* monspeliensis

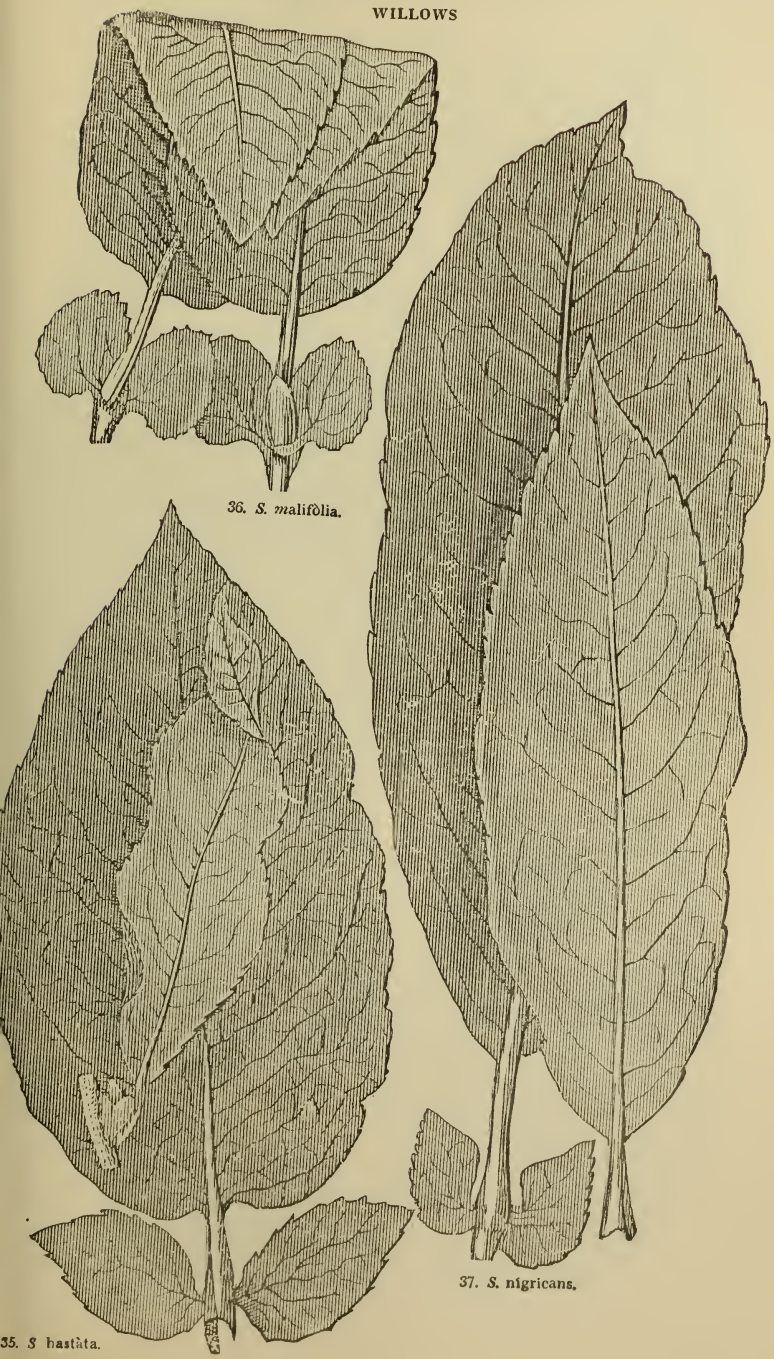
31. *S.* tetraspérma.

§ i. continued.—*Adult Leaves serrated, nearly smooth.*

WILLOWS.

§ i. continued.—*Adult Leaves serrated, nearly smooth*

WILLOWS



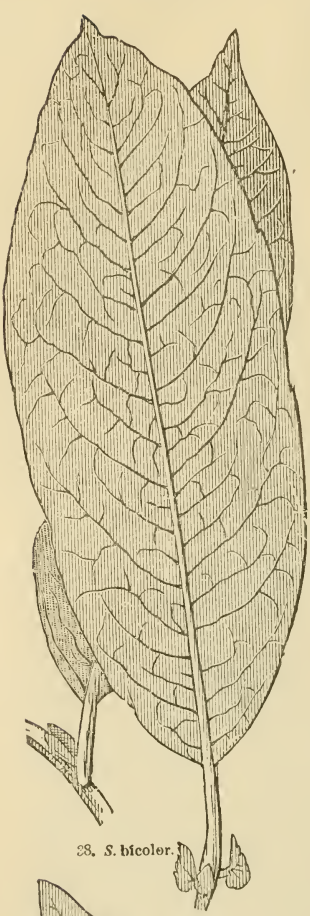
36. *S. malifòlia.*

37. *S. nigricans.*

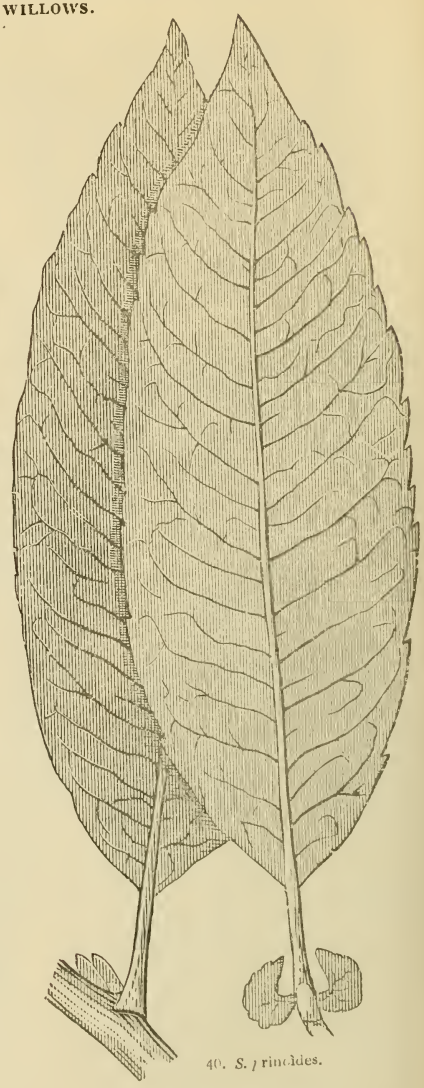
35. *S hastàta.*

§ i. continued.—*Adult Leaves serrated, nearly smooth.*

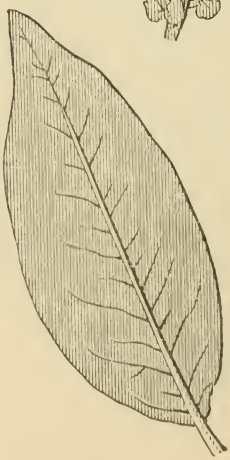
WILLOWS.

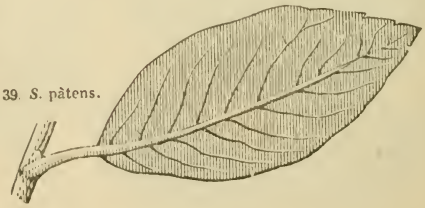


38. *S.* bicolor.



40. *S.* pruinoides.





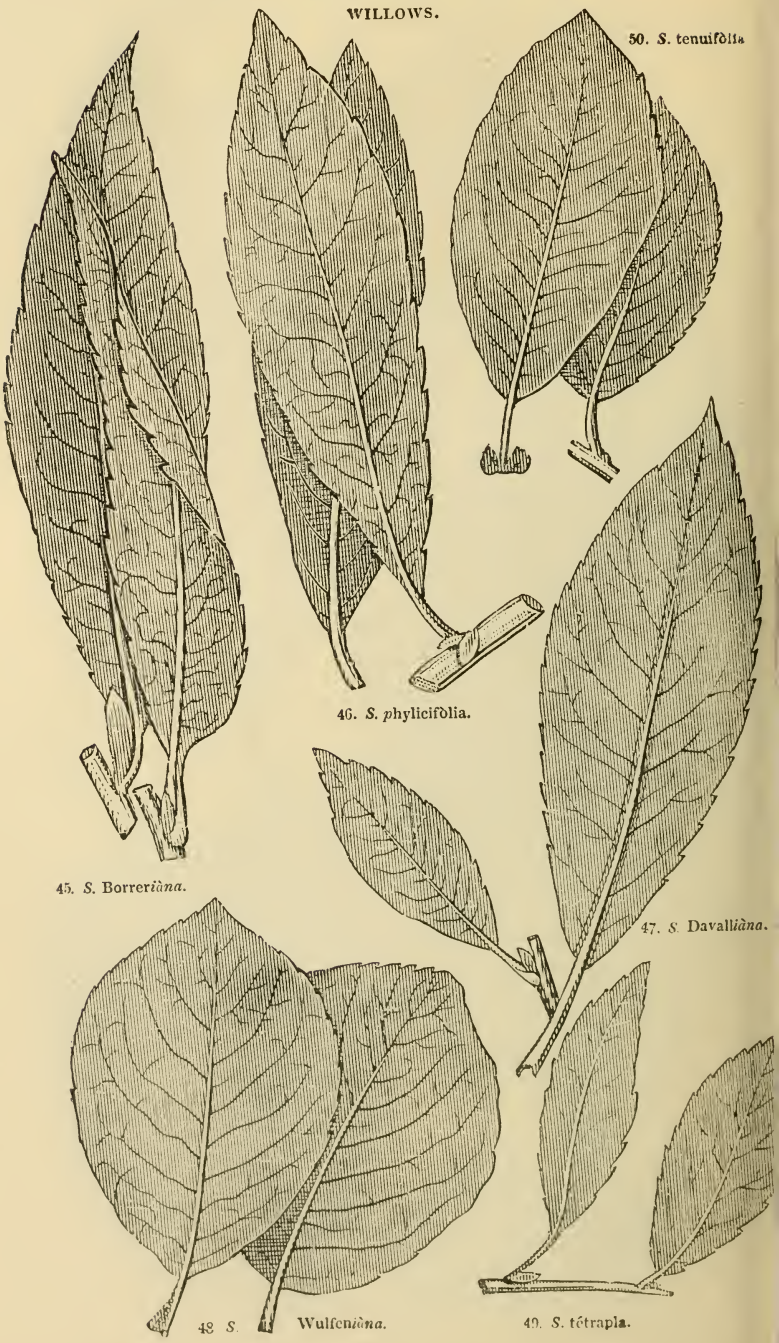
39. *S.* pàtens.

§ i. continued.—*Adult Leaves serrated, nearly smooth.*

WILLOWS.

§ i. continued.—*Adult Leaves serrated, nearly smooth.*

WILLOWS.

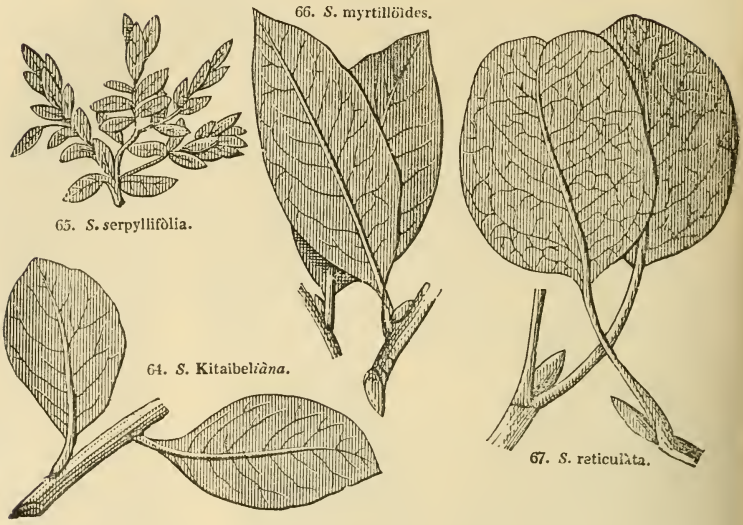


WILLOWS.

56. S. prunifòlia.
63. S. polàris.
62. S. herbàcea.
54. S. floribúnda.
60. S. Myrsinites.
53. S. ramifúsca.
55. S. Dicksoniàna.
52. S. Croweàna.
51. S. Weigeliàna.
57. S. vacciniifòlia.
58. S. venulòsa.
59. S. carinàta.
61. S. procúmbens.

## § ii. *Adult Leaves entire, nearly smooth.*

### WILLOWS.

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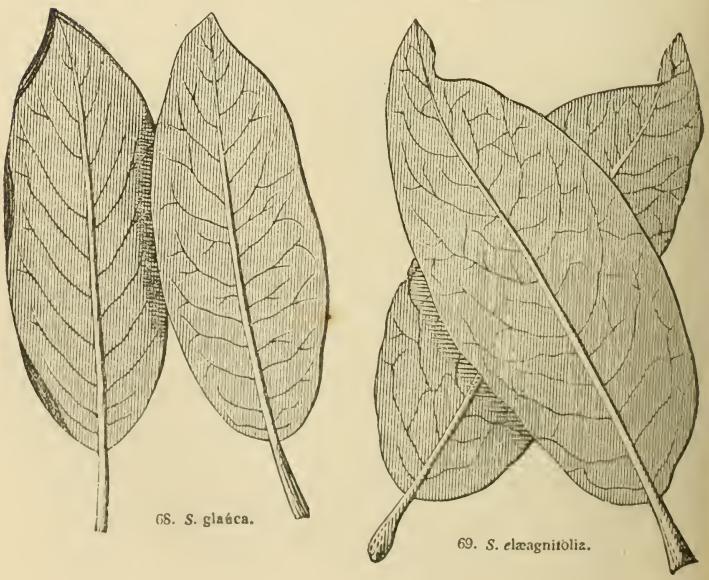
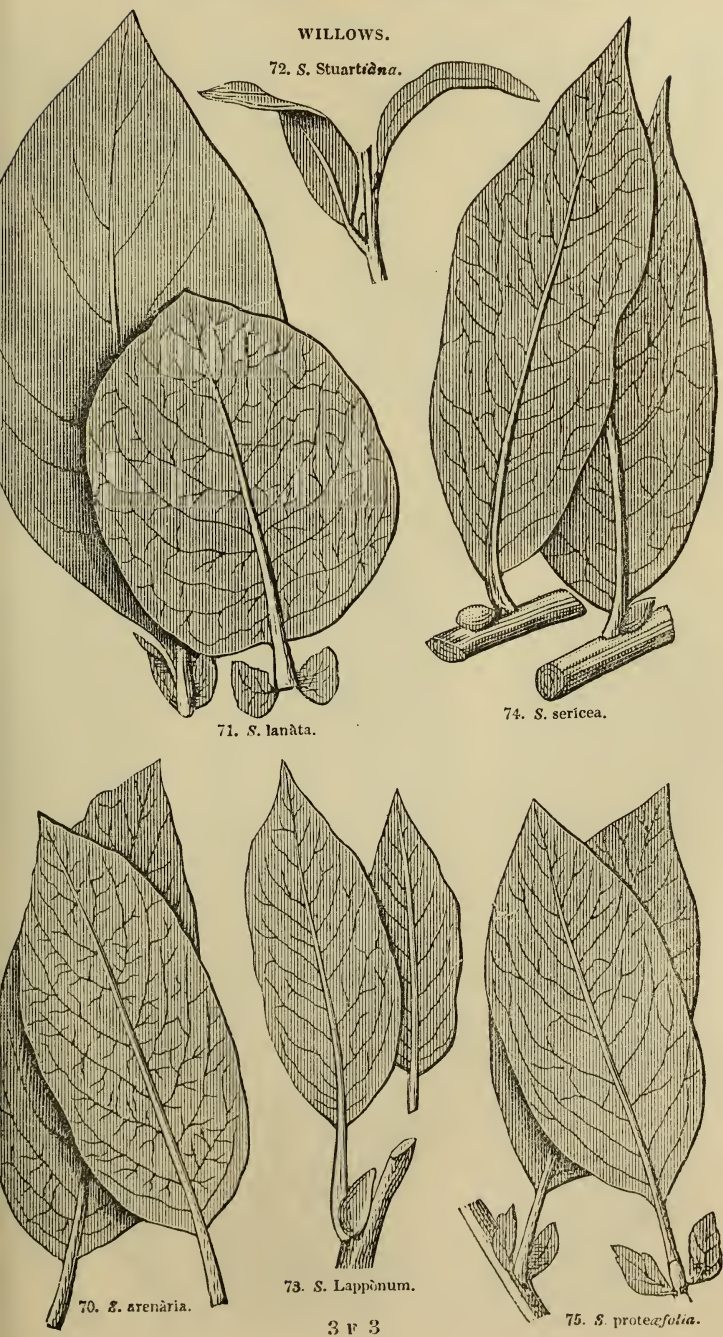
## § iii. *Leaves all shaggy, woolly, or silky.*

### WILLOWS.

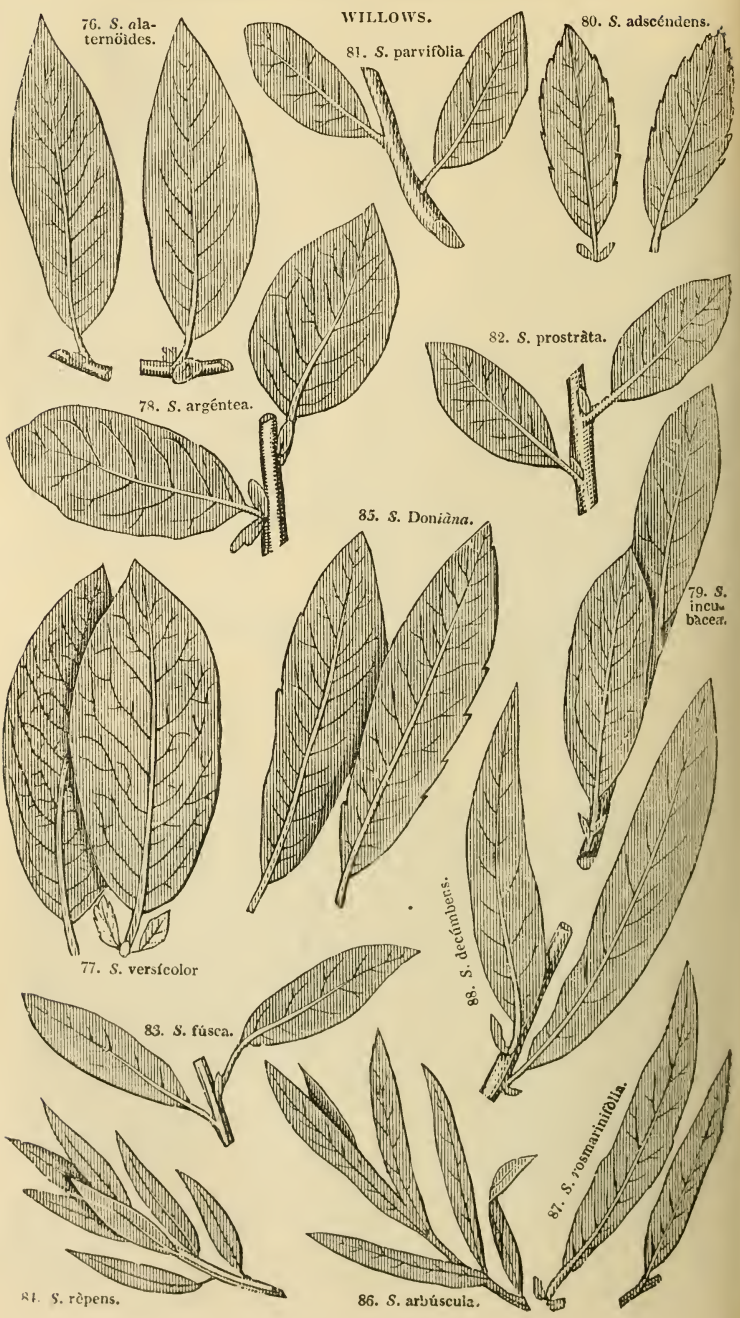


§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

WILLOWS.



§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

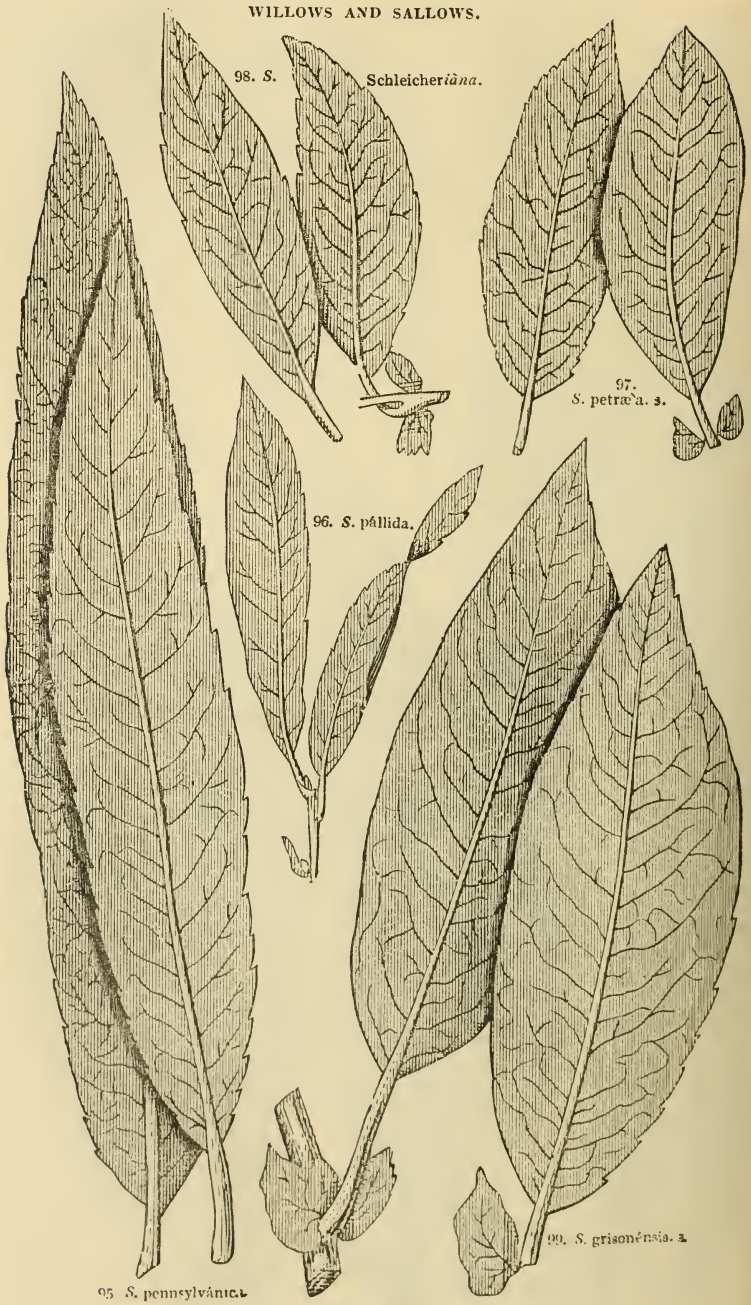


§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

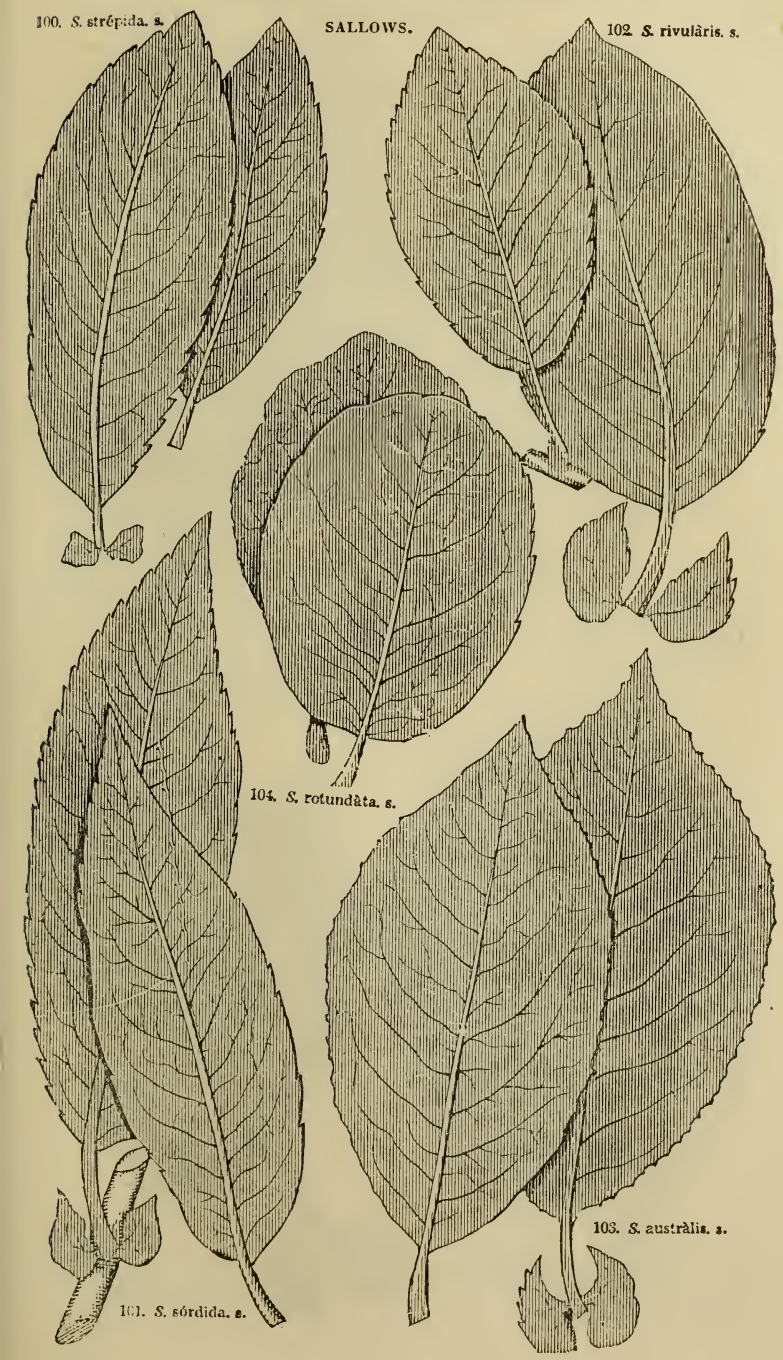
WILLOWS.

§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

WILLOWS AND SALLOWS.

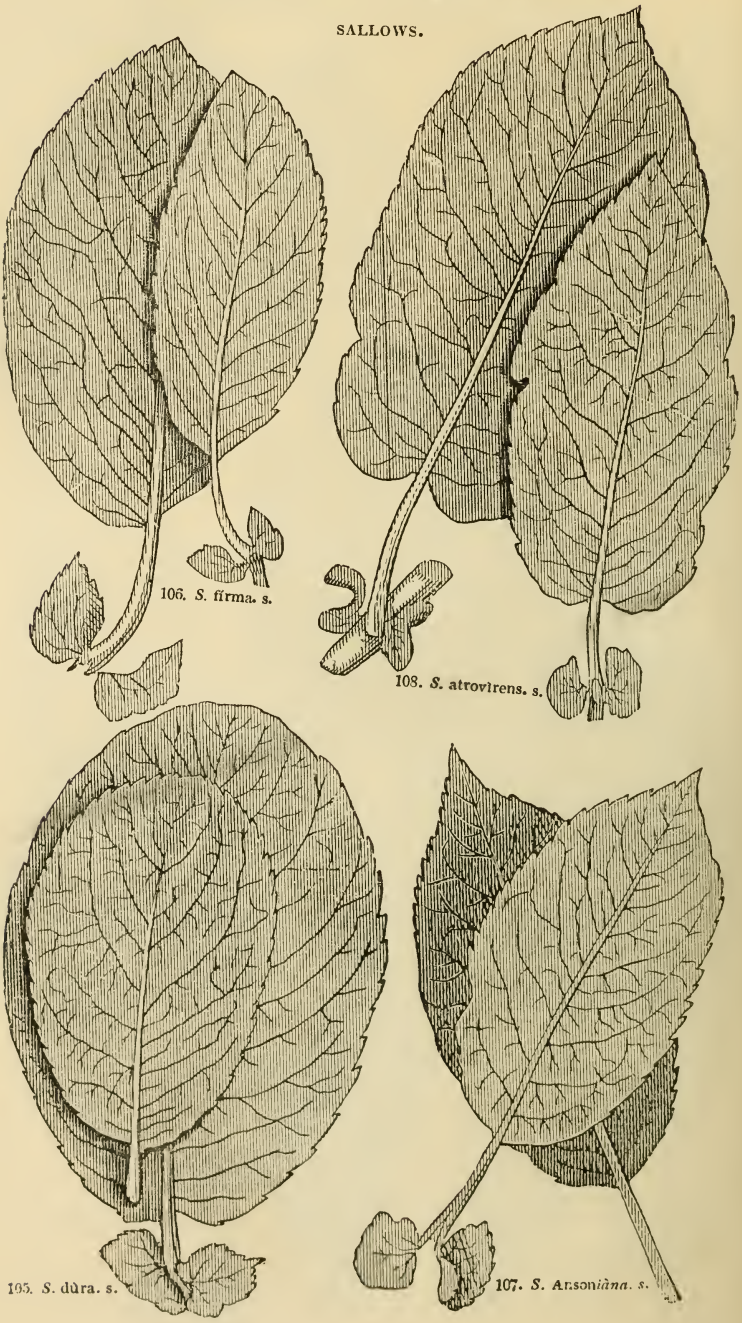


§ iii. continued.—*Leaves all shaggy, woolly, or silky.*



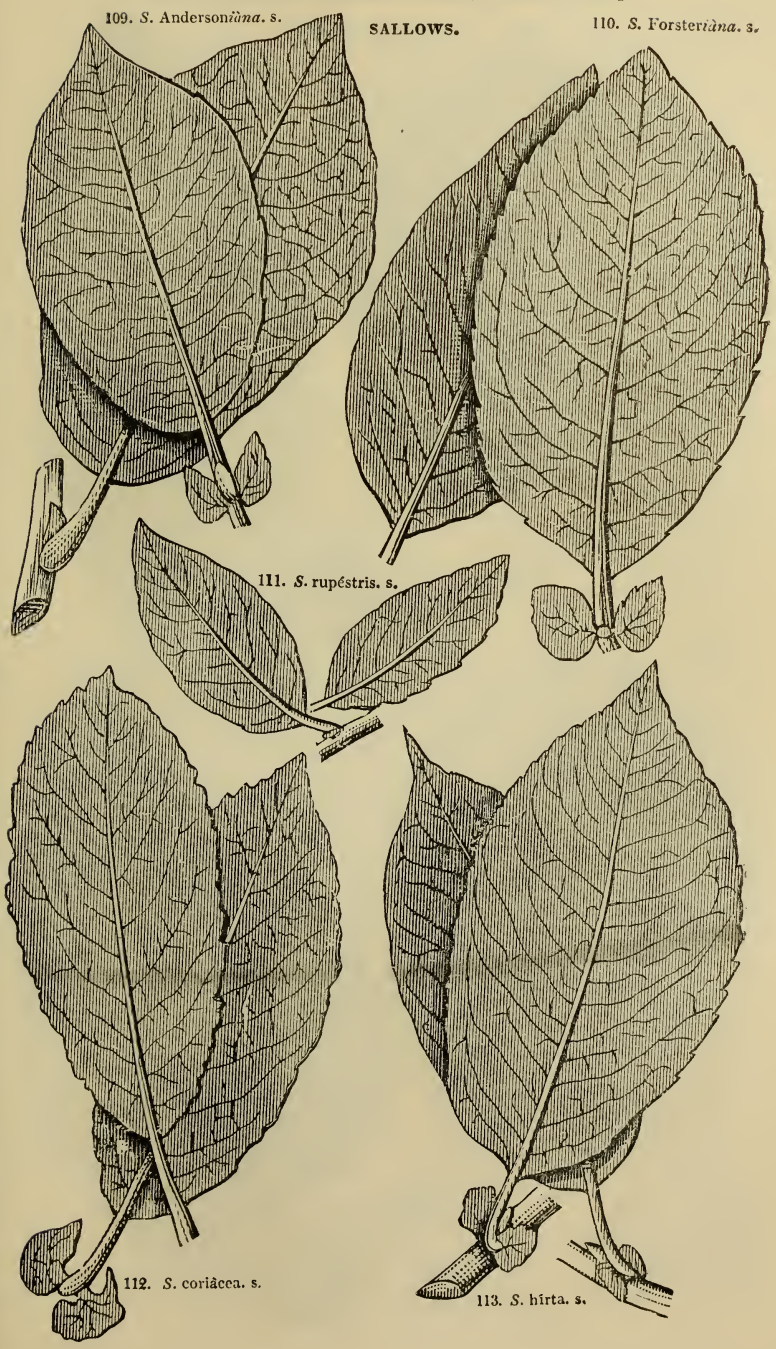
§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

SALLOWS.



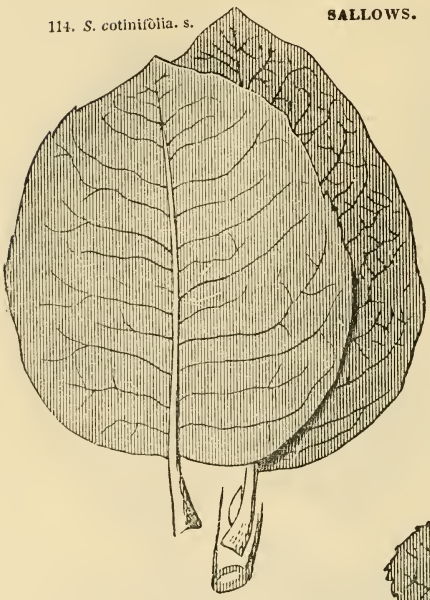
§ iii. continued.—*Leaves all shaggy, woolly, or silky*

SALLOWS.

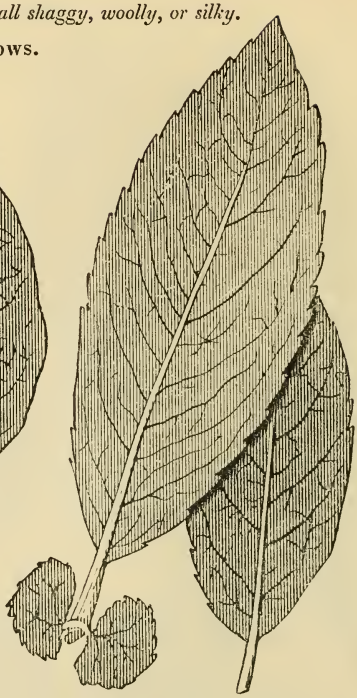


§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

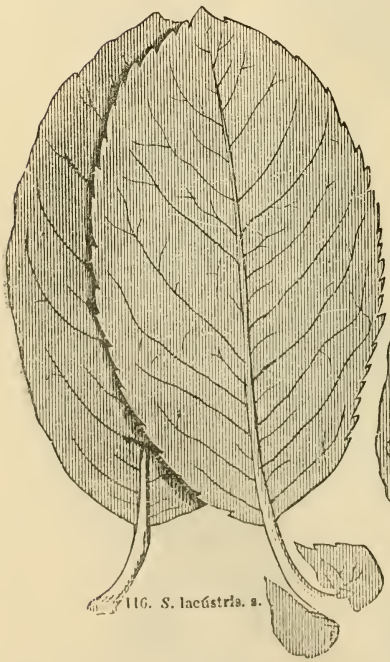
**SALLOWS.**



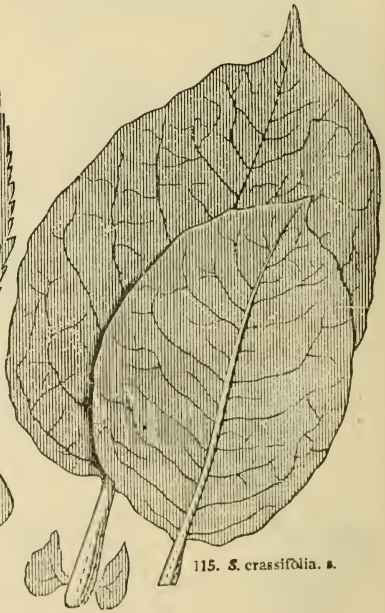
114. *S.* cotinifólia. s.



117. *S.* vaudénsis. s.



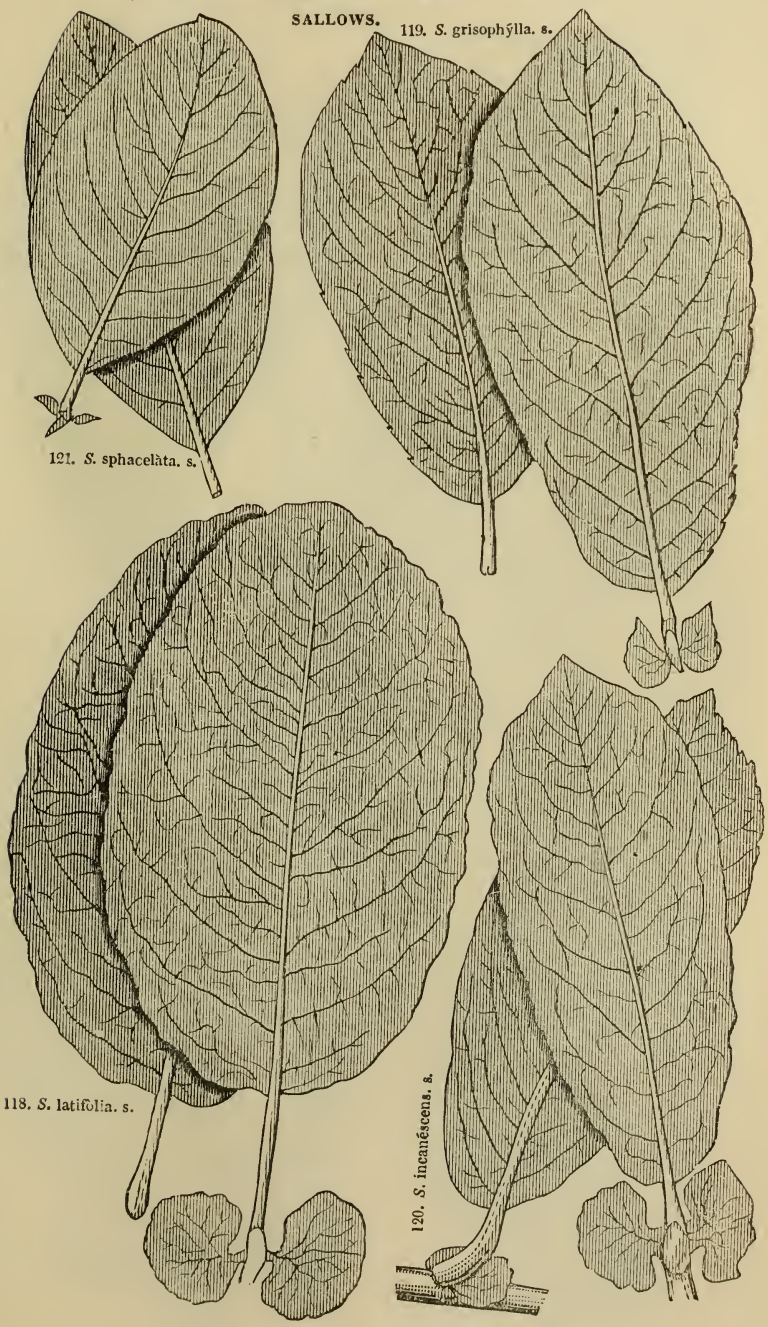
116. *S.* lacústris. s.



115. *S.* crassifólia. s.

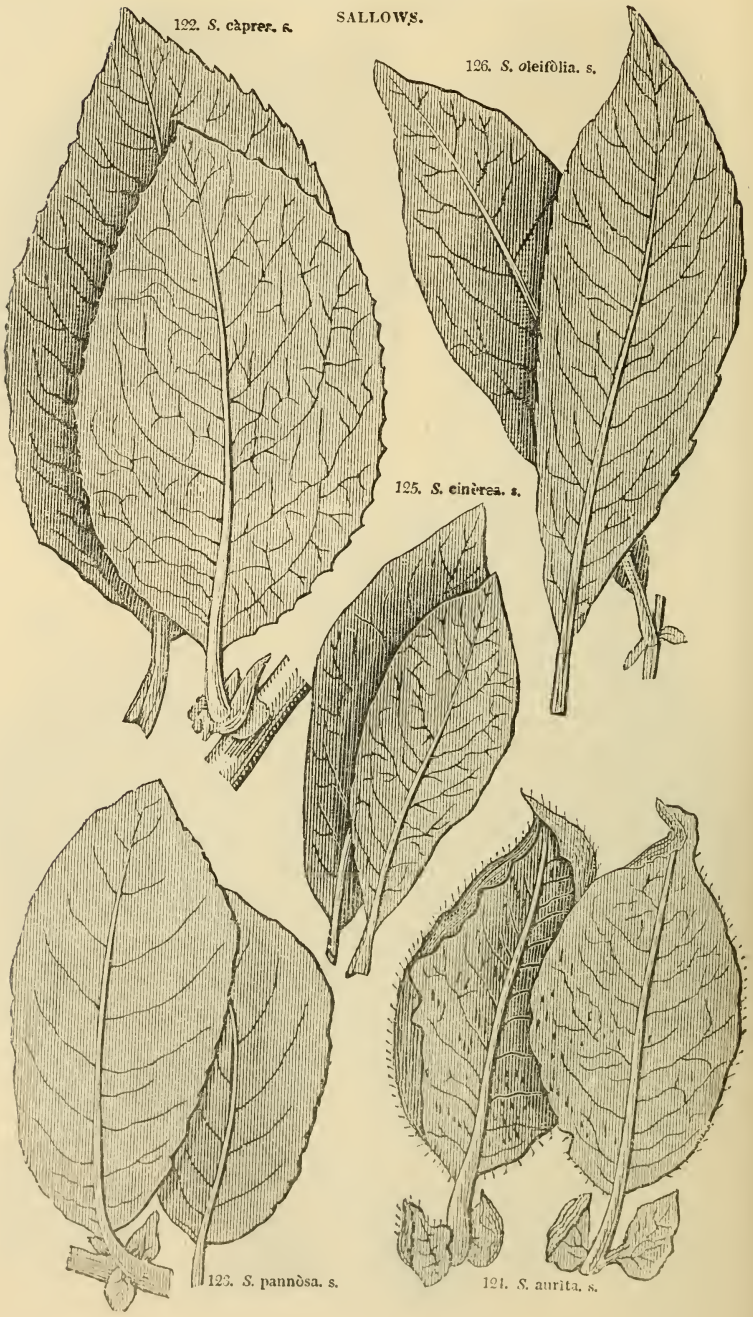
§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

SALLOWS.



§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

SALLOWS.

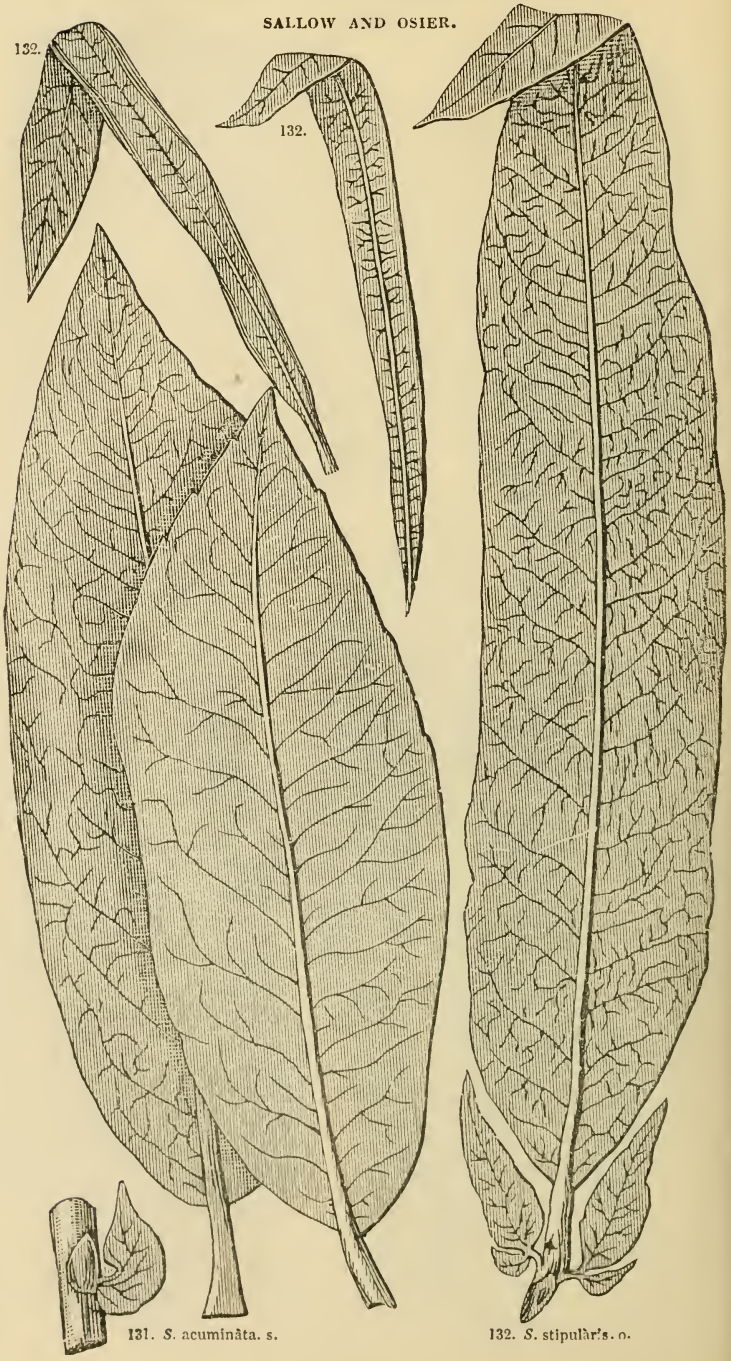


§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

SALLOWS.

§ iii. continued.—*Leaves all shaggy, woolly, or silky.*

SALLOW AND OSIER.

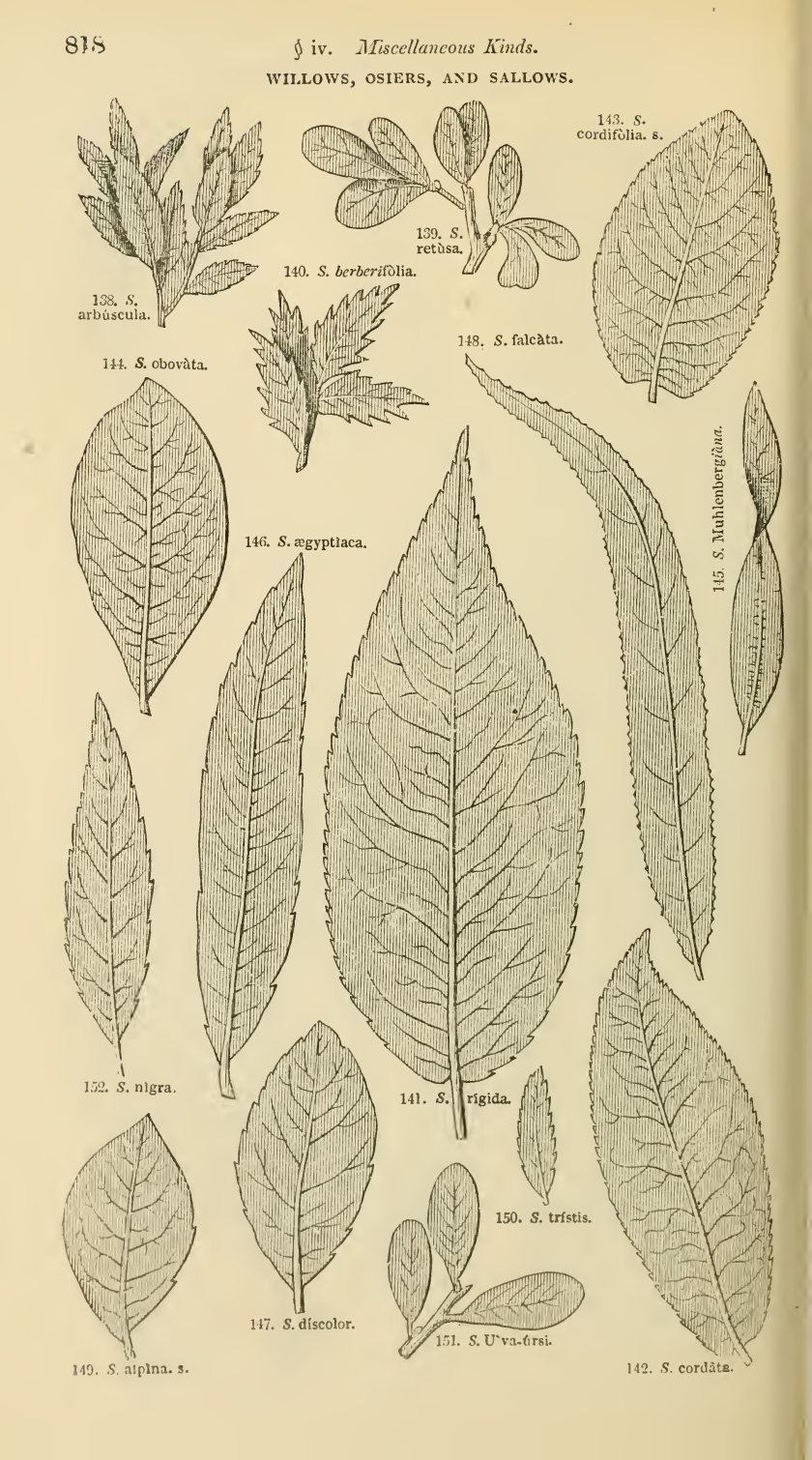



131. *S.* acuminàta. s.

132. *S.* stipulàr's. o.

OSIERS AND WILLOWS.

WILLOWS, OSIERS, AND SALLOWS.



## Genus II.

### PO'PULUS *Tourn.* The Poplar. *Lin. Syst.* Diœ'cia Octándria.

*Identification.* Tourn. Inst., t. 350.; Lin. Gen., 526.; Theo. Nees ab Esenbeck Gen. Pl. Germ. Illust.; Smith's Eng. Fl., 4. p. 242.
*Synonymes.* Peuplier, *Fr.*; Pappel, *Ger.*; Pioppo, *Ital.*; Poplier, *Dutch*; Alamo, *Span.*
*Derivation.* Some suppose the word *Pópulus* to be derived from *pallō*, or *paipallō*, to vibrate or shake; others, that the tree obtained its name from its being used, in ancient times, to decorate the public places in Rome; where it was called *arbor populi*, or the tree of the people. Bullet derives the name also from *populus*, but says that it alludes to the leaves being easily agitated, like the people. From the Spanish name for this tree, *alamo*, is derived the word *alameda*, the name given to the public walks in Spain, from their being generally planted with poplars.

*Gen. Char., &c.* Bractea to the flower of each sex laciniated in its terminal edge. *Male flower* consisting of a calyx, and 8 stamens at fewest; in many instances many more. *Female flower* consisting of a calyx and a pistil. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; entire or serrated, with the disk more or less oblate, and the petiole in most compressed in the part adjoining the disk. *Flowers* in catkins, greenish, red, or yellow. *Seed* cottony, ripe in a month or six weeks after the appearance of the flowers. Decaying leaves yellow, yellowish green, or black. — Trees deciduous; natives of Europe, Asia, or North America.

They are all of rapid growth, some of them extremely so; and they are all remarkable for a degree of tremulous motion in their leaves, when agitated by the least breath of wind. The catkins of the males of most of the species are very ornamental, from the red or dark brown tinge of their anthers, and from their being produced very early in spring, when the trees are leafless. The females of all the species have their seeds enveloped in abundance of cottony down; which, when ripe, and the seeds are shed, adheres to every object near it; and is so like cotton wool in appearance and quality, that it has been manufactured into cloth and paper, though it has been found deficient in elasticity. The wood of the poplar is soft, light, and generally white, or of a pale yellow. It is of but little use in the arts, except in some departments of cabinet and toy making, and for boarded floors; for which last purpose it is well adapted, from its whiteness, and the facility with which it is scoured; and, also, from the difficulty with which it catches fire, and the slowness with which it burns. In these respects, it is the very reverse of deal. Poplar, like other soft woods, is generally considered not durable; but this is only the case when it is exposed to the changes of the external atmosphere, or to water. One of the most valuable properties of the poplar is, that it will thrive in towns in the closest situations; and another is, that, from the rapidity of its growth, it forms a screen for shutting out objects, and affords shelter and shade sooner than any other tree. All the kinds, whether indigenous or foreign, are readily propagated by cuttings or layers, and some of them by suckers. The species which produce suckers may all be propagated by cuttings of the roots. They all like a moist soil, rich rather than poor, particularly when it is near a running stream; but none of them thrive in marshy soil, as is commonly supposed, though in such situations the creeping-rooted kinds are to be preferred, as living on the surface.

#### ♃ 1. *P.* A'LBA *L.* The white Poplar, *or Abele Tree.*

*Identification.* Lin. Sp., 1463.; Eng. Fl., 4. p. 243.; Hook. Brit. Fl., ed. 2., p. 432.
*Synonymes.* *P.* álba latifòlia *Lob. Ic.* 2. p. 193. fig. 1.; *P.* màjor *Mill. Dict.* 8. No. 4.; *P.* nívea *Willd. Arb.* 227.; *P.* álba nívea *Mart. Mill.*; the name of Leukē, given to this species by Dioscorides, is still used among the modern Greeks (see *Smith Prod., Sibth. Fl. Græca*); the great white Poplar, great Aspen, Dutch Beech; Peuplier blanc, Ypréau, Blanc de Hollande, Franc Picard, *Fr.*; Aubo, or Aoubero, in some provinces; weisse Pappel, Silber Pappel, weisse Aspe, Weissalber Baum, *Ger.*; Abeelboom, *Dutch.*
*Derivation.* The specific name of White applies to the under surface of the leaves, which, when quivering in the wind, give the tree a peculiarly white appearance. The English name of Abele

is derived from the Dutch name of the tree, Abeel; and this name is supposed by some to be taken from that of the city of Arbela, in the plains of Nineveh, near which, on the banks of the Tigris and Euphrates, great numbers of these trees grew. It is said to be the same tree as that mentioned in the *Bible* as Abel-shittim, Chittim, Shittim-wood, and Kittim. The Dutch Beech is an old name, given to this tree, as we are informed by Hartlib, in his *Compleat Husbandman* (1659), on account of ten thousand trees of it having been brought over all at once from Flanders, and planted in the country places; where the people, not knowing what they were, called them Dutch beech trees. The French name of Ypréau alludes to the tree being found in great abundance near the town of Ypres.

*The Sexes.* Both sexes are described in the *English Flora*, and are not unfrequent in plantations.

*Engravings.* Eng. Bot., t. 1618.; Hayne Abbild., t. 202.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1492.

*Spec. Char., &c.* Leaves lobed and toothed; somewhat heart-shaped at the base; snow-white, and densely downy beneath. Catkins of the female plant ovate. Stigmas 4. (*Smith.*) Root creeping, and producing numerous suckers. Branches very white, and densely downy when young. Leaves angular, and generally with three principal lobes, variously and unequally toothed, blunt-pointed, veiny; dark green and smooth above, and covered with a thick remarkably white down beneath. The leaves vary very much in form; and on young luxuriant branches they are almost palmate. The leaves are not folded in the bud, and the buds are without gum. A large tree. Europe, in woods or thickets, in rather moist soil. Height 90 ft. Flowers dark brown; March. Seed ripe; May. Decaying leaves dark brown.

1492. *P.* álba.

*Varieties.* These are numerous, but the principal one, *P.* (a.) canéscens, being generally considered as a species, we shall first give it as such; after enumerating the varieties which belong to *P.* álba.

☤ P. *a.* 2 *hýbrida* Bieb. Fl. Taur. Cauc. 2. p. 423. and Suppl. p. 633. *P.* álba *Bieb.* l. c.; ? *P.* intermèdia *Mertens*; *P.* a. crassifòlia *Mertens*; and *P.* grísea *Lodd. Cat.* 1836. — Appears to be intermediate between *P.* álba and *P.* (a.) canéscens. It is plentiful in the neighbourhood of streams in Tauria and Caucasus; whence it appears to have been introduced into Britain in 1816.

☤ P. *a.* 3 *acerifòlia.* *P.* acerifòlia *Lodd. Cat.* ed. 1836; *P.* quercifòlia *Hort.*; *P.* palmàta *Hort.*; *P.* arembérgica *Lodd. Cat.* 1836; *P.* bélgica *Lodd. Cat.* 1836. — A very distinct variety of *P.* álba, with the leaves broad, and deeply lobed, like those of some kinds of *Acer.*

☤ P. *a.* 4 *cándicans.* *P.* cándicans *Lodd. Cat.* ed. 1836; *P.* nívea *Lodd. Cat.* — A strong-growing variety of *P.* álba; probably identical with *P.* acerifòlia. This is the *P.* tomentòsa of the Hawick Nursery, and the hoary poplar of the Edinburgh nurseries, where it is propagated by layers.

☤ P. *a.* 5 *ægyptìaca* Hort. *P.* a. pállida *Hort.*; the Egyptian white Poplar. — A much weaker-growing plant than any of the preceding varieties.

☤ P. *a.* 6 *pendula.* *P.* a. var. grácilis ràmis pendéntibus *Mertens.* — Specimens of this variety, of both sexes, are in the Linnean herbarium; and there are trees of it on the ramparts at Bremen.

☤ 2. *P.* (A.) CANE'SCENS *Smith.* The grey, *or common white*, Poplar.

*Identification.* Smith Fl. Brit., p. 1080.; Eng. Fl., 4. p. 243.

*Synonymes.* *P.* álba *Mill. Dict.* ed. 8. No. 1.; *P.* álba fòliis minóribus *Raii Syn.* 446.; *P.* álba fòlio minòre *Bauh. Hist.* v. 1. p. 2. 160. fig.; Peuplier grisaille, *Fr.*

*The Sexes.* Only the female plant is expressly described in the *English Flora.* The plant in the Horticultural Society's Garden is the male.

*Engravings.* Eng. Bot., t. 1619.; Hayne Abbild., t. 201.; and our *fig.* 1493.

*Spec. Char., &c.* Leaves roundish, deeply waved, toothed; hoary and downy beneath. Catkins of the female plant cylindrical. Stigmas 8. It is essentially distinguished from *P.* álba, as Mr. Crowe first discovered, by the stigmas, which are 8, spreading in two opposite directions. The

bracteas of the fertile flowers are, also, more deeply and regularly cut. The branches are more upright and compact. The leaves are rounder, more conspicuously 3-ribbed, and less deeply or acutely lobed; not folded in the bud, and without gum. They are downy beneath; but the down is chiefly greyish, and not so white or cottony as in *P.* álba: in some instances the leaves are glabrous. (*Smith.*) A tree closely resembling the preceding species, and found in similar situations.

The wood of the white poplar weighs, when green, 58 lb. 3 oz. per cubic foot; and in a dried state, 38 lb. 7 oz.: it shrinks and cracks considerably in drying, losing one quarter of its bulk. The wood of *P.* (a.) canéscens is said to be much harder and more durable than that of *P.* álba; in the same manner as the wood of the *T*ília europæ'a parvifòlia is finer-grained and harder than that of *T.* e. grandifòlia. The wood of both kinds is the whitest of the genus; and it is used, in France and Germany, for a variety of minor purposes, particularly when lightness, either of weight or colour, is thought desirable; or where an artificial colour is to be given by staining. It is excellent for forming packing-cases, because nails may be driven into it without its splitting. It is used by the turner and the cabinet-maker, and a great many toys and small articles are made of it. The boards and rollers around which pieces of silk are wrapped in merchants' warehouses and in shops are made of this wood, which is peculiarly suitable for this purpose, from its lightness, which prevents it much increasing the expense of carriage. The principal use of the wood of the white poplar in Britain is for flooring-boards; but for this purpose it requires to be seasoned for two or three years before using. For the abele to attain a large size, the soil in which it is planted should be loamy, and near water; though on a dry soil, where the tree will grow slower, the timber will be finer-grained, and more durable. In British nurseries, it is commonly propagated by layers; which, as they seldom ripen the points of their shoots, or produce abundance of fibrous roots the first season, ought to be transplanted into nursery lines for at least one year before removal to their final situation. The tree is admirably adapted for thickening or filling up blanks in woods and plantations; and, for this purpose, truncheons may be planted 3 in. or 4 in. in diameter, and 10 ft. or 12 ft. high. Owing to the softness of the wood, and its liability to shrink and crack, it is dangerous to cut off very large branches; and, even when branches of moderate size are cut off, the wound ought always to be covered over with grafting clay, or some description of plaster, to exclude the air. The tree is considered, both by French and English authors, as bearing lopping worse than any other species of the genus; and, when transplanted, the head should never be cut off, and not even cut in, unless in cases where the tree is to be planted in a hot and dry soil.

1493. *P.* (a.) canéscens.

♃ 3. *P.* TRE'MULA *L.* The trembling-*leaved* Poplar, *or Aspen.*

*Identification.* Lin. Sp. Pl., 1464.; Eng. Fl., 4. p. 244.; Hook. Fl. Scot., 289.
*Synonymes.* *P.* líbyca *Rait Syn.* 456.; *P.* hýbrida *Dod. Pempt.* 836.; *P.* nigra *Trag. Hist.* 1033. fig.; *P.* péndula *Du Roi*; Aspe; le Tremble, *Fr.*; la Tremola, Alberalla, Alberetto, *Ital.*; Zitter-Pappel, Espe, *Ger.*
*Derivation.* The English name of Aspen or Aspe is evidently derived from the German, *espe.*
*The Sexes.* Both sexes are described in the *English Flora.*
*Engravings.* Eng. Bot., t. 1909.; Hayne Abbild., t. 203.; the plate in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1494.

*Spec. Char., &c.* Young branchlets hairy. Leaves having compressed footstalks, and disks that are roundish-ovate, or nearly orbicular; toothed in a repand manner, downy when young, afterwards glabrous on both surfaces. Stigmas 4, erect, eared at the base. (*Smith.*) A large tree, but seldom seen so high as *P.* álba. Europe; in rather moist woods. Height 50 ft. to 70 ft.

Flowers brown; March and April. Seeds ripe; May. Decaying leaves dark brown or black.

*Varieties.*

♀ P. *t.* 2 *péndula.* *P.* péndula *Lodd. Cat.* 1836; *P.* supìna *Lodd. Cat.* ed. 1836. (The plate of this variety in our first edition, vol. vii.)—The only distinct variety of *P.* trémula that exists in the neighbourhood of London.

♀ 3 P. *t.* 3 *lævigàta.* *P.* lævigata *Ait. Hort. Kew.*, *Lodd. Cat.* ed. 1836.—Leaves shining, rather larger than in the species.

A rapid-growing tree, rather exceeding the middle size, with a straight clean trunk, tall in proportion to its thickness; and a smooth bark, which becomes grey, and cracks with age. The branches, which extend horizontally, and are not very numerous, at length become pendulous. The young shoots are tough, pliant, and of a reddish colour; and both the wood and the leaves vary exceedingly, according to the dryness or moisture of the soil in which the tree is grown. The young shoots and leaves, produced in the form of suckers from the roots, are greedily eaten by cattle and sheep. The roots, from their nearness to the surface, impoverish the land, and prevent anything else from growing on it luxuriantly; and the leaves destroy the grass. The wood weighs, when green, 54 lb. 6 oz.; half-dry, 40 lb. 8 oz.; and quite dry, 34 lb. 1 oz.: it consequently loses two fifths of its weight by drying. It shrinks by this operation one sixth part of its bulk, and cracks and splits in an extreme degree. The wood is white and tender: and it is employed by turners; by coopers, for herring casks, milk-pails, &c.; by sculptors and engravers; and by joiners and cabinet-makers; and for various minor uses, such as clogs, butchers' trays, pack-saddles, &c. As the roots of this tree chiefly extend close under the surface of the ground, it is better adapted for soils that are constantly wet below, than almost any other tree, since its roots, by keeping so very near the surface, are never out of the reach of the air, which they would be if they penetrated into soil perpetually saturated with water. Propagated by cuttings, but not so readily as most other species. Wherever trees are found, they generally throw up suckers from which plants may be selected; or cuttings of the roots may be made use of.

1494. *P.* trémula.

♀ 4. *P.* (T.) TRE'PIDA *Willd.* The *North American* trembling-*leaved* Poplar, *or American Aspen.*

*Identification.* Willd. Sp. Pl., 4. p. 803.; Pursh Fl. Amer. Sept., 2. p. 618.

*Synonyme.* *P.* tremulóìdes *Michx. North Amer. Sylva* 2. p. 241., *N. Du Ham.* 2. p. 184.

*The Sexes.* A plant of the female is in the London Horticultural Society's arboretum, where it flowered in April, 1835, though only 5 or 6 feet high. The stigmas were 6 or 8.

*Engravings.* N. Du Ham., 2. t. 53.; Michx. North Amer. Sylva, 2. t. 99. f. 1.; and our *fig.* 1495.

*Spec. Char., &c.* Disk of leaf suborbiculate, except having an abruptly acuminate point; toothed; having two glands at its base on the upper surface; silky while young, afterwards glabrous. Bud resinous. Petiole compressed. Disk of leaf toothed with hooked teeth, ciliate. Catkins silky. (*Mich.*) A tree. Canada to Carolina, in swamps; and found also from Hudson's Bay to the northward of the Great Slave Lake, as far as lat. 64°. Height 20 ft. to 30 ft. Introduced in 1812. Flowers brown; April. Seed ripe in May. Decaying leaves dark brown or black.

1495. *P.* (T.) trép'da.

Its usual period of leafing, in England, is before that of *P.* trémula. Among the Cree Indians, the wood is esteemed to burn better, in a green state, than that of any other tree in the country.

♀ 5. *P.* (T.) GRANDIDENTA`TA *Michx.* The large-toothed-*leaved* Poplar, *or North American large Aspen.*

*Identification.* Michx. Fl. Bor. Amer., 2. p. 243.; Pursh Fl. Amer. Sept., 2. p. 619.
*The Sexes.* The female is represented in Michaux's figure.
*Engravings.* Michx. North Amer. Sylva, 2. t. 99. f. 2.; and our *fig.* 1496.

*Spec. Char., &c.* Leaf, when young, reddish, villous, afterwards glabrous on both surfaces; the petiole compressed in the terminal part; the disk roundish-ovate, acute, sinuately toothed with large unequal teeth. (*Pursh.*) A tree. Canada. Height 40 ft. to 50 ft. with a trunk 10 or 12 inches in diameter. Introduced in 1772. Flowers brown; April. Decaying leaves dark brown or black.

*Variety.*
♀ P. (*t.*) *g.* 2 *péndula* Michx. Flor. Bor. Amer. is said to have pendulous branches. H. S.

The full-formed disk of the leaf is nearly round, and 2 or 3 inches in width, with large unequal indentations in the margins. The most ornamental of all the poplars, when the leaves expand in spring, from their deep purplish red colour.

1496. *P.* (t.) grandidentàta.

♀ 6. *P.* GRÆ`CA *Ait.* The Grecian, *or Athenian,* Poplar.

*Identification.* Ait. Hort. Kew., ed. 1., 3. p. 407.; Willd. Sp. Pl., 4. p. 804.; N. Du Ham., 2. p. 185.
*Derivation.* The tree is supposed to be a native of North America, and to be named after the village called Athens, on the banks of the Mississippi, where the tree grows abundantly. See *Gard. Mag.*, 1840, p. 231.
*The Sexes.* The female is in the London Horticultural Society's arboretum; and was, some years ago, in gardens at Bury St. Edmunds, and in the plantations of O. R. Oakes, Esq., at Newton, near that town. Willdenow, in his *Sp. Pl.*, also mentions the male as the only one that he had seen living. It is doubtful whether the male is in Britain.
*Engravings.* N. Du Ham., 2. t. 54.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1497.

*Spec. Char., &c.* Branch round, glabrous. Petiole compressed. Disk of leaf roundish ovate, having a shallow sinus at the base, and terminating in an acute point; serrated with equal teeth that are adpressed; glabrous, except being slightly ciliated on the edge. (*Willd.*) A tree, according to Willd., wild in the islands of the Archipelago; but, not being included in the *Prod. Flora Græca,* it is more probably a native of North America. Height 30 ft. to 60 ft. Seeds ripe in May. Cultivated in Britain in 1779. Flowers brown; March and April. Decaying leaves black.

A handsome vigorous-growing tree, very interesting when in flower, from its numerous darkish-coloured catkins, which have the plume-like character of those of *P.* trémula, *P.* trépida, and *P.* grandidentàta. The leaves, in their form, colour, and general aspect, resemble those of *P.* trépida, but are longer.

1497. *P.* græ`ca.

♀ 7. *P.* NI'GRA *L.* The black-*barked, or common black,* Poplar.

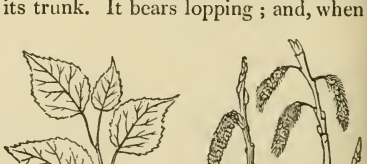
*Identification.* Lin. Sp. Pl., t. 1464.; Eng. Fl., 4. p. 245.; Hook. Fl. Scot., 280.
*Synonymes.* *P.* álba *Trag. Hist.* 1080. fig.; *P.* vimínea *Du Ham. Arb.*; *P.* vistulénsis *Hort.*, *P.* polónica *Hort.*; Aigeiros, *Greek;* Kabaki, *Modern Greek;* the old English Poplar, *Suffolk;* the Willow Poplar, *Cambridgeshire;* Water Poplar; the female of *P.* nigra is called the Cotton Tree at Bury St. Edmunds; Peuplier noir, Peuplier liard, Osier blanc, *Fr.*; schwarze Pappel, *Ger.*
*Engravings.* Eng. Bot., t. 1910.; the plate of this species in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1498.

*Spec. Char., &c.* Petiole somewhat compressed. Disk of leaf deltoid, pointed, serrated with glanded teeth, glabrous on both surfaces. Catkins lax, cylindrical. Stigmas 4, simple, spreading. (*Smith.*) A tree. Europe, from Sweden to Italy, on the banks of rivers, and in moist woods; and found, also, in the north of Africa. Height 50 ft. to 80 ft. Flowers dark red; March and April. Seed ripe in May. Decaying leaves rich yellow.

*Variety.*

♀ P. *n.* 2 *víridis* Lindl. *P.* víridis *Lodd. Cat.* ed. 1836. — Leaves of a brighter green than in the species.

The leaves are slightly notched on their edges, of a pale light green; and the petioles are yellowish. The leaves are protruded about the middle of May, much later than those of *P.* fastigiàta, *P.* álba, or *P.* (a.) canéscens; and, when they are first expanded, their colour appears a mixture of red and yellow. The catkins are shorter than those of *P.* trémula or *P.* álba; they appear before the leaves, in March and April; those of the males are of a dark red, and, being produced in abundance, have a striking effect. The capsules of the female catkins are round; and the seeds which they enclose are enveloped in a beautiful white cotton. The tree is of rapid growth, especially in good soil, in moist situations, or on the banks of rivers. In the climate of London, it attains the height of 30 or 40 ft. in ten years; and, when planted for timber, arrives at perfection in from forty to fifty years, beginning to decay when about sixty or eighty years old. It is readily known from all other species from the numerous large nodosities on its trunk. It bears lopping; and, when treated as a pollard, it produces abundance of shoots. In moist soil, when cut down to the ground annually, it throws up numerous shoots, like willows. The wood is yellow, soft, and, being more fibrous than that of any other species of poplar, it splits more readily than the wood of either *P.* álba or *P.* trémula. It weighs, in a green state, 60 lb. 9 oz. per cubic foot; half-dry, 42 lb. 13 oz.; and dry, 29 lb.: thus losing more than one half its weight by drying; and it loses, by shrinking, more than a sixth of its bulk. It is applied to all the different purposes of that of *P.* álba, but its most general use on the Continent is for packing-cases, more especially for the transport of bottled wines. In Berlin, the wood produced by knotty trunks, which is curiously mottled, is much used by cabinetmakers for making ladies' workboxes, which are celebrated both in Germany and France. This wood is brought from the banks of the Vistula, where the tree abounds, and hence the names of *P.* vistulénsis and *P.* polónica.



1498. *P.* nigra.

♀ 8. *P.* (? N.) CANADE'NSIS *Michx.* The Canadian Poplar.

*Identification.* Michx. Arb., 3. p. 298.; N. Amer. Syl., 2. p. 227.
*Synonymes.* *P.* lævigàta *Willd. Sp. Pl.* 4. p. 803., *Pursh Fl. Amer. Sept.* t. 2. p. 619., *Spreng. Syst. Veg.* 2. p. 244., but not of *Hort. Kew.*; *P.* monilifera *Hort. Par.*, *Nouv. Cours*, &c.; Cotton-wood, *Michx.*; Peuplier de Canada, *Fr.* in *Nouv. Cours d'Agri.* edit. 1822, tom. xi. p. 407.
*The Sexes.* Willdenow has seen the male living; Bosc says that only the female is in France.
*Engravings.* Mich. Arb., 3. t. 11.; North Amer. Syl., 2. t. 95.; and our *fig.* 1499.

*Spec. Char., &c.* Young branches angled. Petiole compressed. Disk of leaf roundish ovate, deltoid, acuminate, subcordate at the base, where there are glands, serrated with unequal teeth, glabrous. The branches are angular, and the angles form whitish lines, which persist even in the adult age of the tree. The trunk is furrowed, even in old age; less so than that of *P.* angulàta, more so than that of *P.* monilífera. The young buds are gummy. The catkins of the female are from 6 in. to 8 in. long. (*Michx.*) A large tree. North America, in high rocky places between Canada and Virginia, and about the western lakes. Height 70 ft. to 80 ft. Introduced in 1769. Flowers red; April and May. Seeds ripe in June. Decaying leaves yellow.

In Britain, the Canadian poplar used to be very commonly propagated in nurseries, and extensively introduced into plantations; but, within the last 30 years, the black Italian poplar (*P.* monilífera) has been substituted for it. Bosc says that the Canadian poplar approaches nearer to *P.* nìgra than any other species; and Michaux, in 1840, expressed to us the same opinion, and in short that it was difficult to distinguish them.

1499. *P.* (n.) canadénsis.

1500. *P.* canadénsis.

Propagated by cuttings of the young wood, about 18 in. long, put in during autumn. The first shoots produced from these cuttings are always curved at the lower extremity, though in a few years this curvature entirely disappears. The same thing takes place with the cuttings of *P.* monilífera.

### ☿ 9. *P.* (? N.) BETULIFO'LIA *Pursh.* The Birch-leaved Poplar.

*Identification.* Pursh Fl. Amer. Sept., 2. p. 619.; Spreng. Syst. Veg., 2. p. 244.
*Synonymes.* *P.* nìgra *Michx. Fl. Amer. Bor.* 2. p. 244.; *P.* hudsónica *Michx. Arb.* 3. p. 293. t. 10. f. 1., *North Amer. Syl.* 2. p. 230.; *P.* hudsoniàna *Bosc*, and *Lodd. Cat.* ed. 1836; American black Poplar, *Amer.*; Peuplier de la Baie d'Hudson, *Fr.*
*The Sexes.* It is uncertain whether it is the male or female plant that is in European collections.
*Engravings.* Michx. Arb., 3. t. 10. f. 1.; Michx. N. Amer. Syl., 2. t. 96. f. 1.; and our *fig.* 1501.

*Spec. Char., &c.* Young branches yellow. Branchlets hairy when young. Petioles yellow, and also hairy when young. Disk of leaf rhomboid, but much acuminated; toothed in every part of the edge; hairy on the under surface when young, but afterwards glabrous. The catkins are 4 in. to 5 in. long, and destitute of the hairs which surround those of several other species. (*Michx.*) A tree, found by Michaux on the banks of the river Hudson, a little above Albany; and by Pursh about Lake Ontario. Height 30 ft. to 40 ft. Introduced in ? 1780. Flowers ?.

1501. *P.* (n.) betulifòlia.

Tolerably distinct; and forming a small, neat, deep-green-leaved tree, but in our opinion only a variety of *P.* nìgra. M. Michaux, in 1840, acknowledged the probability of this being the case.

### ☿ 10. *P.* (? N.) MONILI'FERA *Ait.* The Necklace-bearing, *or black Italian,* Poplar.

*Identification.* Ait. Hort. Kew., ed. 1., 3. p. 406.; Pursh Fl. Amer. Sept., 2. p. 618.
*Synonymes.* *P.* virginiàna *Lin., Desf. Hort. Par., Dum. Bot. Cult.* tom 6. p. 400., *Nouv. Cours d'Agri.* tom. 11. p. 407.; *P.* glandulòsa *Mœnch Meth.* p. 339.; *P.* carolinénsis *Mœnch Weissenst.* 81., *Burgsd. Anleit.* 378.; *P.* nìgra itálica *Lodd. Cat.* edit. 1836; *P.* nìgra americàna *Ibid.*; *P.*

acladésca *Lindl.* in *Enc. of Plants*, p. 840.; ? *P.* marylándica *Bosc Nouv. Cours*, art. Peuplier, p. 409.; Virginian Poplar, Swiss Poplar, Canadian or Berry-bearing Poplar, *Mill.*; Peuplier Suisse, Peuplier triphilon (see *Nouv. Cours*), Peuplier de Virginie, *Dumont*.

*Derivation.* The epithet necklace-bearing alludes to the shape of the female catkins, which, in their capsules, and the manner in which these are attached to the rachis, resemble strings of beads. Swiss poplar, and black Italian poplar, allude to the tree being very abundant in Switzerland and the north of Italy.

*The Sexes.* Both sexes are frequent in British collections, but the male is most abundant. The female is figured and described by Watson (see *Dend. Brit.*, t. 102.), who has figured some parts of the male flower in the same plate. Both male and female are abundant in French gardens; the male is known by the petioles of the leaves being red, while those of the female are white.

*Engravings.* Michx. Arb., t. 10. f. 2.; N. Amer. Syl., 2. t. 96. f. 2.; Wats. Dend. Brit., 2. t. 102.; the plates of this tree in Arb. Brit. 1st edit., vol. vii.; and our *fig.* 1502.

*Spec. Char., &c.* Shoot more or less angular. Branch round. Petiole slender, compressed in the upper part; in some leaves, shorter than the disk, in others longer. Disk deltoid, glanded at the base, which is subcordate in some leaves, and very obtusely wedge-shaped in others; tip acute; edge serrated all round, except in the central part of the base, and at the acute tip; the teeth have incurved points; glabrous except in the edge, which, at least when the leaf is growing, is ciliate; edge ultimately and perhaps early, gristly. Male flowers about 30 in a catkin, upon pedicels. Bractea glabrous. Stamens 16, a little longer than the corolla. Female flowers about 40 in a catkin. Stigmas 4, dilated, jagged. It is rather doubtful to what country this poplar is indigenous: Canada is given as its native country in the *Hortus Kewensis;* but in the *Nouveau du Hamel* it is stated to be a native of Virginia. Michaux, jun., states that neither he nor his father ever found it wild in America; and Pursh adds that he has only seen it in that country in gardens. According to the *Hortus Kewensis*, it was introduced into Britain by Dr. John Hope, in 1772. It is a tree, according to Pursh, from 60 ft. to 70 ft. high in America; but in Britain it grows to the height of 100 or 120 ft., or upwards; flowering in March, and ripening its seeds about the middle of May. Decaying leaves greenish yellow, or rich yellow.

*Varieties.*

♀ P. (*n.*) *m.* 2 *Lindley*ànа *Booth.* The new waved-leaved Poplar, *Hort.* — Leaves rather larger than in the species, and they are somewhat more undulated. H. S.

♀ P. (*n.*) *m.* 3 *fòliis variegàtis* Hort. — Leaves variegated; conspicuous in early spring, but afterwards unsightly.

*P.* monilífera is the most rapid-growing of all the poplars; and its timber is equal, if not superior, in quality to that of any other species. It comes into leaf, in the climate of London, in the last week of April, or in the beginning of May, long after the *P.* fastigiàta, but about the same time as *P.* nìgra, of which we believe it to be only a variety, about which time the male catkins have chiefly dropped off. The cottony seed of the female is ripe about the middle of May, and is so abundant, even in young trees, as to cover the ground under them like a fall of snow. The rate of growth, in the climate of London, on good soil, is between 30 ft. and 40 ft. in 7 years; even in Scotland it has attained the height of 70 ft. in 16 years. The wood may be applied to the same purposes as that of the species previously described; but, being of larger dimensions, it may be considered as better fitted for being used in buildings. Pontey observes that the tree is not only an astonishingly quick grower, but that its stem is remarkably straight; and that, with very trifling attention to side pruning, it may be kept clear of branches to any required height. For these

1502. *P.* (n.) monilifera.

reasons, he considers it the most profitable of all trees to plant in masses in a fertile soil, rather moist. At Fontainebleau, the female tree bears fertile seeds, from which many thousand plants come up annually in the walks, and are mostly destroyed, though some varieties have been selected from them.

### ✱ 11. *P.* FASTIGIA'TA *Desf.* The fastigiate, *or Lombardy*, Poplar.

*Identification.* Desf. Hist. Arb., t. 2. p. 465.

*Synonymes.* *P.* dilatàta *Ait. Hort. Kew.* 3. p. 406. ; *P.* nìgra itálica *Du Roi Harbk.* 2. p. 141. ; *P.* itálica *Mœnch Weissenst.* 79. ; *P.* itálica dilatàta *Willd.* ; *P.* pyramidàta *Hort.* ; *P.* pannónica *Jacq.* ; *P.* itálica var. carolinénsis *Burgsdorf ;* Cypress Poplar, Turin Poplar, Po Poplar ; Peuplier d'Italie, Peuplier pyramidal, *Fr.* ; Lombardische Pappel, Italianische Pappel, *Ger.* ; Pioppo Cypresso, *Ital.*

*The Sexes.* Plants of the male are plentiful in England. The female is known to be extant in Lombardy, whence we received dried specimens and seeds in November, 1836. (See *Gard. Mag.*, vol. xii.) M. C. A. Fischer, inspector of the University Botanic Garden, Göttingen, found, in 1827, a single plant of the female, after having many years before sought fruitlessly for it, among many thousands of plants around Göttingen. (See *Gard. Mag.*, vol. vi. p. 419, 420.)

*Engravings.* Thouin and Jaume St. Hilaire, t. 152. ; the plates in Arb. Brit., 1st edit., vol. vii. ; and our *fig.* 1503. in which *a* represents the female catkins with the blossoms expanded ; *b*, the female catkins with seeds ripe ; *c*, a portion of the female catkin of the natural size ; *d*, a single flower of the natural size ; and *e*, a single flower magnified.

1503. *P.* fastigìata.

*Spec. Char., &c.* Petiole compressed. Disk of leaf deltoid, wider than long, crenulated in the whole of the edge, even the base ; glabrous upon both surfaces. Leaves in the bud involutely folded. A fastigiate tree.

Persia, and apparently indigenous in Italy. Height 100 ft. to 150 ft. Introd. 1758. Flowers red; March and April. Decaying leaves yellow.

The Lombardy poplar is readily distinguished from all other trees of this genus by its tall narrow form, and by the total absence of horizontal branches. The trunk is twisted, and deeply furrowed; and the wood, which is small in quantity in proportion to the height of the tree, is of little worth or duration, being seldom of such dimensions as to admit of its being sawn up into boards of a useful width. The leaves are very similar to those of *P.* nìgra, and the female catkins to those of *P.* monilìfera; the male catkins resemble those of *P.* nìgra, and have red anthers, but are considerably more slender. One difference between *P.* fastigiàta and *P.* nìgra is, that the former produces suckers, though not in any great abundance, while the latter rarely produces any. *P.* fastigiàta, also, in the climate of London, protrudes its leaves eight or ten days sooner than *P.* nìgra. The rate of growth of *P.* fastigiàta, when planted in a loamy soil, near water, is very rapid. In the village of Great Tew, in Oxfordshire, a tree, planted by a man who, in 1835, was still living in a cottage near it, was 125 ft. high, having been planted about 50 years.

♀ 12. *P.* ANGULA'TA *Ait.* The angled-*branched, or Carolina,* Poplar.

*Identification.* Ait. Hort. Kew., 3 p. 407.; Michx. N. Amer. Sylva, 2. p. 224.; Pursh Sept., 2. p. 619.

*Synonymes.* *P.* angulòsa *Michx. Fl. Bor. Amer.* 2. p. 243.; *P.* heterophýlla *Du Roi Harbk.* 2. p. 150.; *P.* macrophýlla *Lodd. Cat.* edit. 1836; *P.* balsamìfera *Mill. Dict.* No. 5.; Mississippi Cotton Tree, *Amer.*

*The Sexes.* A plant at Ampton Hall, Suffolk, and one in the London Horticultural Society's arboretum, are both of the male sex.

*Engravings.* Michx. North Amer. Sylva, 2. t. 94.; Du Ham. Arb., 2. t. 39. f. 9.; the plates of this tree in Arb. Brit., 1st. edit., vol. vii.; and our *figs.* 1504. and 1505.

*Spec. Char., &c.* Bud not resinous, green. Shoot angled, with wings. Disk of leaf ovate, deltoid, acuminate, toothed with blunt teeth that have the point incurved, glabrous: upon the more vigorous shoots, the disk is heart-shaped, and very large; branches brittle. (*Michx.*) A large tree. Virginia, Florida, and on the Mississippi, in morasses, and on the banks of rivers. Height 70 ft. to 80 ft. Introduced in 1738. Flowers reddish or purplish; March. Decaying leaves greenish yellow.

1504. *P.* angulàta.

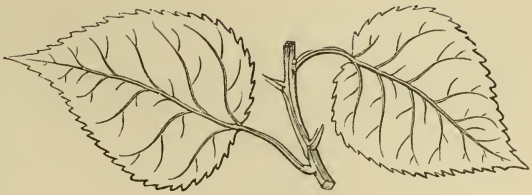
*Varieties.*

♀ P. *a.* 2 *nòva* Audibert. — Hort. Soc. Garden in 1836.

♀ P. *a.* 3 *Medùsæ Booth.* — Hort. Soc. Garden in 1836.

The shoots of this species, when young, are extremely succulent; and, as they continue growing late in the summer, they are frequently killed down several inches by the autumnal frosts. After the tree has attained the height of 20 or 30 feet, which, in the climate of London, it does in five or six years, this is no longer the case; because the shoots produced are shorter and less succulent, and, of course, better ripened. According to Michaux, the leaves

when they first unfold are smooth and brilliant, 7 in. to 8 in. long on young plants, and as much in breadth; while on trees 30 or 40 feet high they are only one fourth the size. As an ornamental tree, it forms a very stately object; but, from the brittleness of the branches, they are very liable to be torn off by high winds. The wood is of little use either in America or England. Propagated by layers, as it strikes less freely from cuttings than most of the other species.



1505. *P.* angulàta.

*℄ 13. *P.* HETEROPHY'LLA *L.* The various-*shaped*-leaved Poplar Tree.

*Identification.* Lin. Sp. Pl., 1464.; Michx. Fl. Bor. Amer., 2. p. 244.; Pursh Sept., 2. p. 619.
*Synonymes.* *P.* mâgna, foliis amplis, &c., *Gron. Virg.* 194. 157.; *P.* cordifolia *Burgsdorf, Lodd. Cat.* edit. 1836; *P.* argéntea *Michx. North Amer. Sylva* 2. p. 235. t. 97.; Cotton Tree, *Michx. N. A. S.*
*The Sexes.* Only the male is in British gardens.
*Engravings.* Michx. North Amer. Sylva, 2. t. 97.; N. Du Ham., 2. t. 51.; and our *fig.* 1506.

*Spec. Char., &c.* Shoot round, tomentose. Leaf, while young, tomentose; afterwards less so, or glabrous. Petiole but slightly compressed. Disk roundish ovate, having a small sinus at the base, and being slightly auricled there (or, as Michaux, jun., has expressed it, with the lobes of the base lapped, so as to conceal the junction of the petiole), blunt at the tip, toothed; the teeth shallow, and having incurved points. Male flowers polyandrous. Female flowers glabrous, situated distantly along the glabrous rachis, and upon long pedicels. (*Michx.*) A tree. New York to Carolina, in swamps, and more particularly in the country of the Illinois, and on the western rivers. Height 70 ft. to 80 ft. in America; 8 ft. to 10 ft. in England. Introduced in 1765. Flowers reddish. Decaying leaves greenish yellow; April and May.

We have never seen plants of this species higher than 5 or 6 feet; though a specimen tree in the Mile End Nursery, and another at Syon, must have been planted more than 50 or 60 years; and though it is said by Bosc to be a lofty tree in the neighbourhood of Paris. It is a very remarkable species, from the particular character of its leaves, which, though as large as, or larger than, those of *P.* angulàta, and something resembling them in outline and in position on the branches, yet have nearly cylindrical footstalks, and their disks hanging down on each side from the midrib in a flaccid manner, not observable in any other species of the genus. The young branches and the annual shoots are round, instead of being angular, like those of *P.* angulàta, *P.* canadénsis, and *P.* monilífera. The leaves, while very young, are covered with a thick white down, which gradually disappears with age, till they at last become perfectly smooth above, and slightly downy beneath. Propagated by inarching on any of the varieties of *P.* nigra. If this species were grafted at the height of 30 or 40 feet on *P.* monilífera, it would form a very singular and beautiful drooping tree.

1506. *P.* heterophylla.

♃ 14. *P.* BALSAMI'FERA *L.* The Balsam-bearing Poplar, *or Tacamahac Tree.*

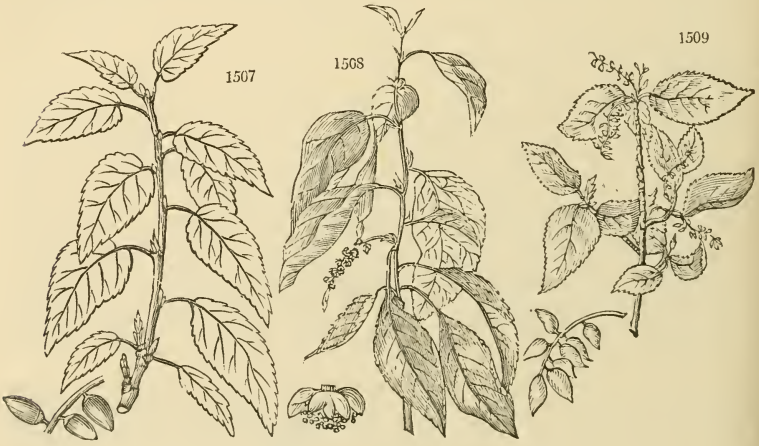
*Identification.* Lin. Syst. Veg., 45.; Mich. North Amer. Sylva, 2. p. 237. t. 98.; Pursh Sept., 2. p. 618.

*Synonymes.* *P. Tacamahàca* Mill. Dict., No. 6.; the Tacamahac, *Amer.*; le Baumier, *Fr.*; Peuplier liard, and also Tacamahac, *in Canada*; Balsam Pappel, *Ger.*

*The Sexes.* Plants of the male are in English gardens, and trees are occasionally found with male and female flowers on the same catkin.

*Engravings.* Michx. North Amer. Sylva, 2. t. 98. f. 1.; Du Ham. Arb., ed. nov., 2. t. 50.; Pall. Fl. Ross., 1. t. 41.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our *figs.* 1507. and 1508, and *fig.* 1509. from Pall. Ross.

*Spec. Char., &c.* Shoot round. Bud very gummy. Petiole round. Disk of leaf ovate-acuminate, or ovate-lanceolate, serrated with depressed teeth; deep green on the upper surface, whitish on the under one, and tomentose there, but rather inconspicuously so, and netted with glabrous veins. Stipules subspinescent, bearing gum. Stamens 16, or more. (*Michx.*) A tree of the middle size. North America, in the most northern parts, and in Dahuria and Altai. Height 40 ft. to 50 ft.; in America, 80 ft. Introduced in 1692. Flowers purplish; March and April. Decaying leaves brown and black.




1507, 1508, 1509. *P.* balsamifera.

*Varieties.*

♃ P. *b.* 2 *viminàlis.* *P.* viminàlis *Lodd. Cat.* ed. 1836; *P.* salicifòlia *Hort.*; *P.* longifòlia *Fischer, Pall. Ross.* t. 41. B. (Our *fig.* 1510. from a living plant.) — A native of Altai, with slender twiggy branches, and leaves nearly lanceolate. Lodd.

1510. *P.* b. viminàlis.

♃ P. *b.* 3 *latifòlia* Hort. —Leaves rather broader than those of the species. H.S.

♃ P. *b.* 4 *intermèdia* Hort., Pall. Fl. Ross t. 41. A. — A native of Dahuria, with stout, short, thick branches knotted with wrinkles; and ovate, long, and rather narrow leaves; and generally attaining only the height of a large shrub. Hort. Soc. Garden.

♃ P. *b.* 5 *suavèolens.* *P.* suavèolens *Fischer*, and *Lodd. Cat.* ed. 1836.; the new sweet-scented Poplar of the nurseries. — Said to be more fragrant than any other form of the species.

♃ P. *b.* 6 *fòliis variegàtis* Miller. — Leaves variegated. Hort. Soc. Gard.

The balsam poplar, in the climate of London, is the very first tree that comes

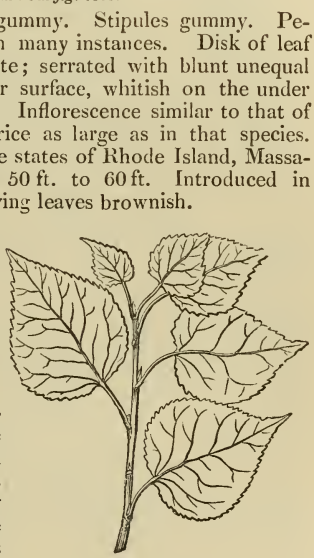
into leaf; its foliage is of a rich gamboge yellow, and so fragrant as in moist evenings to perfume the surrounding air. The tree is remarkably hardy, but, unless in the vicinity of water, it seldom attains a large size in England, or is of great duration. Readily propagated by suckers, which it sends up in abundance; or by cuttings, which, however, do not strike so readily as those of the poplars belonging to *P.* nigra.

* 15. *P.* CA'NDICANS *Ait.* The whitish-*leaved Balsam-bearing, or Ontario,* Poplar.

*Identification.* Ait. Hort. Kew., 3. p. 406.; Michx. N Amer. Sylva, 2. p. 239. t. 98. f. 2.; Pursh Sept., 2. p. 618.
*Synonymes.* *P.* macrophýlla *Lindl.* in *Encyc. of Plants* p. 840.; *P.* latifòlia *Mœnch Meth.* p. 338.; *P.* ontariênsis *Desf. Hort. Par.*; *P.* cordàta *Lodd. Cat.* 1836; *P.* canadénsis *Mœnch Weissenst.* 81., but not of *Michx.* which is *P.* lævigàta *Willd.*; Balm of Gilead Tree, *Boston, North Amer.*; Peuplier liard, *Canada;* Peuplier à Feuilles vernissées, *Fr.*
*The Sexes.* The male is in the London Horticultural Society's Garden; the female is in the Duke of Wellington's garden at Apsley House, London.
*Engravings.* Michx. North Amer. Sylva, 2. t. 98. f. 2.; and our *fig.* 1511.

*Spec. Char., &c.* Shoot round. Bud very gummy. Stipules gummy. Petiole compressed in its upper part, hairy in many instances. Disk of leaf heart-shaped at the base, ovate, acuminate; serrated with blunt unequal teeth; 3-nerved; deep green on the upper surface, whitish on the under one, on which the veins appear reticulate. Inflorescence similar to that of *P.* balsamífera, and the disk of the leaf thrice as large as in that species. (*Michx.*) A tree. North America, in the states of Rhode Island, Massachusetts, and New Hampshire. Height 50 ft. to 60 ft. Introduced in 1772. Flowers purplish; March. Decaying leaves brownish.

The Ontario poplar bears a close general resemblance to the balsam poplar: it has the rigid fastigiate habit of that tree, its fine fragrance, and its property of throwing up numerous suckers; but it differs from it, in having very large heart-shaped leaves, and in attaining a larger size, both in its native country, and in British gardens. The buds are covered with the same balsamic substance as those of *P.* balsamífera; and the leaves are of the same fine yellow colour in spring, though they come out a fortnight later. Like those of the balsam poplar, they preserve, at all stages of their growth, the same shape. Readily propagated by cuttings or suckers, but the tree will not attain a large size unless on rich soil near water; though, as the roots creep along the surface, the soil need not be deep.



1511. *P.* cándicans.

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## ORDER LXIX. *B*ETULA'CEÆ.

*ORD. CHAR.* *Flowers* hermaphrodite, or unisexual. *Perianth* free, 4—5 lobed. *Stamens* 4—12. *Ovarium* solitary. *Stigmas* 2, distinct. *Fruit* indehiscent, 2-celled, compressed, sometimes expanded into wings at the sides. *Seeds* solitary in the cells, pendulous. *Albumen* none. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; entire or serrated. *Flowers* in terminal catkins.—Trees deciduous; natives of Europe, Asia, and North America. Propagated by seeds or layers.

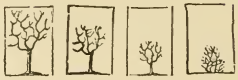
The genera are two, which are thus contra-distinguished:—

*A*'LNUS *Tourn.* Female catkins cylindrical; seeds furnished with a membrane on each side.

*BE*'TULA *Tourn.* Female catkins oval, borne on a branchy peduncle; seeds not bordered with membranes.

## Genus I.

### *A*'LNUS *Tourn.* The Alder. *Lin. Syst.* Monœ'cia Tetrándria



*Identification.* Tourn., t. 359.; Willd. Sp. Pl., 4. p. 334.; Hall. Hist., 2. p. 300.; Gærtn., t. 90.
*Synonymes.* *B*étulæ species *Lin.*; Aune, *Fr.*; Erle, *Ger.*; Ontano, *Ital.*; Aliso, *Span.*
*Derivation.* From *al*, near, and *lan*, the edge of a river, *Celtic;* habitat: from the Hebrew, *alon*, an oak: or, according to others, from *alitur amne*, it thrives by the river.

*Gen. Char.* *Barren flowers* numerous, aggregate, in a loose cylindrical catkin *Calyx* a permanent wedge-shaped scale, 3-flowered, with two very minute lateral scales. *Corolla* composed of three equal florets. *Filaments* 4, from the tube of the corolla. *Anthers* of two round lobes.—*Fertile flowers* fewer, aggregate, in an oval firm catkin. *Calyx* a permanent wedge-shaped scale, 2-flowered. *Corolla* none. *Styles* 2. *Stigma* simple. *Nut* ovate, without wings. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; serrated or entire. *Flowers* terminal, greenish white, appearing earlier than the foliage, in pendulous catkins.—Trees deciduous, natives of Europe and North America; rarely exceeding the middle size, and some so low as to be considered shrubs.

With the exception of *A.* glutinòsa laciniàta and *A.* cordifòlia, the species are not very ornamental; nor is the timber of great value, except for the charcoal which may be made from it. All the species prefer a moist soil, or one in the vicinity of water. *A.* glutinòsa ripens seeds freely, as do most of the other sorts; but all the latter are generally propagated by layers. Decaying leaves dark brown or black, and not very ornamental.

♆ 1. *A.* GLUTINO'SA *Gærtn.* The glutinous, *or common*, Alder.

*Identification.* Gærtn., 2. p. 54.; Eng. Fl., 4. p. 131.; Hook. Lond., t. 59.; Scot., 271.
*Synonymes.* *B*étulus *A*'lnus *Lin.*; *B.* emarginàta *Ehrh. Arb.* 9.; *A*'lnus *Raii Syn.* 442.; Aune, *Fr.*; gemeine Else, or Elser, or schwartz Erle, *Ger.*; Elsenboom, *Dutch*; Alno, or Ontano, *Ital.*; Aliso, or Alamo nigro, *Span.*
*Engravings.* Eng. Bot., t. 1508.; Hunt. Evel. Syl., 240. f.; the plate of this species in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1514.

*Spec. Char., &c.* Leaves roundish, wedge-shaped, wavy, serrated, glutinous, rather abrupt; downy at the branching of the veins beneath. (*Smith.*) A deciduous tree. Europe, from Lapland to Gibraltar; and Asia, from the White Sea to Mount Caucasus; and also the North of Africa. Height 30 ft. to 60 ft. Flowers brownish; March and April. Fruit brown; ripe in October. Decaying leaves brownish black, or almost black.

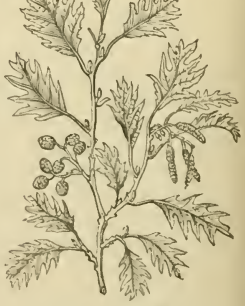
*Varieties.*

♆ A. g. 2 *emarginàta* Willd. Baum. p. 19. — Leaves nearly round, wedge-shaped, and edged with light green.

♆ A. g. 3 *laciniàta* Ait., Willd. l. c., Lodd. Cat. ed. 1836. *A.* g. incìsa *Hort.* (The plate of a fine tree at Syon, in *Arb. Brit.*, 1st edit., vol. vii.; and our *fig.* 1512.) — Leaves oblong and pinnatifid, with the lobes acute. Wild in the north of France, particularly in Normandy, and in the woods of Montmorency near Paris.

A. g. 4 *quercifòlia* Willd. l. c. — Leaves sinuated, with the lobes obtuse.

A. g. 5 *oxyacanthæfòlia*. *A.* oxyacanthæfòlia *Lodd. Cat.* ed. 1836. (Our *fig.* 1513.) — Leaves sinuated and lobed; smaller than those of the preceding variety, and somewhat resembling those of the common hawthorn.



1512. *A.* g. laciniàta.

✝ A. g. 6 *macrocárpa*. *A.* macrocárpa *Lodd. Cat.* 1836.—Leaves and fruit rather larger than those of the species, and the tree is also of somewhat more vigorous growth.

✝ A. g. 7 *fòliis variegàtis* Hort. — Leaves variegated.

*Other Varieties.* The following names are applied to plants in the collection of Messrs. Loddiges: A. *nìgra*, A. *rùbra*, a native of the Island of Sitcha, A. *plicàta*, and A. *undulàta*.

1513. *A.* g. oxyacanthæfòlia

The alder, in a wild state, is seldom seen higher than 40 or 50 feet; but, in good soil near water, it will attain the height of 50 or 60 feet and upwards. *A.* g. laciniàta forms a handsome pyramidal tree, which, at Syon, has attained the height of 63 ft.; and at Woburn Farm, near Chertsey, is still higher. The rate of growth of the alder, in a favourable soil and situation, is about 2 or 3 feet a year for four or five years; so that a tree 10 years planted will frequently attain the height of 20 or 25 feet; and at 60 years the tree is supposed to have arrived at maturity. The roots are creeping; and sometimes, but rarely, they throw up suckers. The tree does not associate well with others, with the exception of the ash (*Baudril.*); but its shade and fallen leaves are not injurious to grass. Near water it retains its leaves longer than any other British deciduous tree. The wood, though soft, is of great durability in water. It weighs, when green, 62 lb. 6 oz.; half-dry, 48 lb. 8 oz.; and quite dry, 39 lb. 4 oz., per cubic foot; thus losing above a third of its weight by drying, while it shrinks about a twelfth part of its bulk. In the *Dictionnaire des Eaux et Forêts*, the wood is said to be unchangeable either in water or earth. It is used for all the various purposes to which soft homogeneous woods are generally applied; viz. for turnery, sculpture, and cabinet-making; for wooden vessels, such as basins, plates, and kneading-troughs; for sabots, wooden soles to shoes and pattens, clogs for women, and similar purposes. At Culzean Castle, Ayrshire, the alder is used as a nurse plant in situations exposed to the sea breeze. (See *Gard. Mag.* for 1841.)

1514. *A.* glutinòsa.

For raising the alder from seeds, the catkins should be gathered in dry weather, as soon as the seeds are matured, and carried to a loft, where they should be spread out thinly. The proper time of sowing is March; and the covering, which ought to be of very light soil, should on no account exceed a quarter of an inch in thickness. The plants from spring-sown seeds will attain the height of from 3 in. to 6 in. the first summer. The second year they will be double or treble that height; and in three or four years, if properly treated, they will be 5 or 6 feet high. The nursery culture and after-management in plantations have nothing peculiar in them; except that, when full-grown trees are to be cut down, it is advisable to disbark them a year before, that the wood, which is very watery, may be thoroughly seasoned; a practice as old as the time of Evelyn. When alders are cut down as coppice-wood in spring, when the sap is in motion, care should be taken that the cuts are not made later than March; and that they are in a sloping direction upwards. If, at this season, the cuts are made downwards, the section which remains on the stool will be so far fractured as,

by the exudation of the sap and the admission of the weather, no longer to throw up vigorous shoots, and it will decay in a few years.

♆ 2. *A.* OBLONGA'TA *Willd.* The oblong-*leaved* Alder.

*Identification.* Willd. Sp. Pl., 4. p. 335.; Baum., p. 20.; N. Du Ham., 2. p. 215.
*Synonymes.* *A'*lnus fol. oblong., &c., *Bauh.*; *A.* fol. ovato-lanceol., &c., *Mill. Dict.* ed. 7.; langliche Else, *Ger.*
*Engravings.* Our *fig.* 1515. from a specimen in Sir W. J. Hooker's herbarium; and *fig.* 1516. from a specimen in the Museum of the Jardin des Plantes.

*Spec. Char., &c.* Leaves elliptic, somewhat obtuse, glutinous; axils of the veins naked on the under side. (*Willd.*) A large deciduous shrub or low tree. Hungary, Austria, and Turkey. Height 20 ft. to 30 ft. Introduced in 1749. Flowers greenish; March and April. Fruit brown; ripe in October or November.

1515. *A.* oblongàta.

1516. *A.* oblongàta.

*Variety.*

♆ A. *o.* 2 *fòliis ellípticis* Ait. *A.* pùmila *Lodd. Cat.* —The leaves are somewhat narrower than in the species.

♆ 3. *A.* INCA'NA *Willd.* The hoary-*leaved* Alder.

*Identification.* Willd. Sp. Pl., 4. p. 335.; N. Du Ham., 2. p. 215.; Höss Anleitung, p. 190.
*Synonymes.* *B. A'*lnus var. incàna *Lin. Sp. Pl.* 1394.; *B.* incàna *Lin. Suppl.*; *B.* vìridis *Vill. Dauph.* 2. p. 789.; weisse Erle, graue Else, or weisse Eller, *Ger.*
*Engravings.* Hayne Abbild., t. 136.; and our *fig.* 1517.

*Spec. Char., &c.* Leaves oblong, acute, pubescent beneath; axils of the veins naked. Stipules lanceolate. (*Willd.*) A deciduous tree. Lapland, Sweden, and Prussia; and on the hills in Austria, Carniola, the Ukraine, Tyrol, and Switzerland; also in North America. Height 50 ft. to 70 ft. Introduced in 1780. Flowers greenish; March and April. Fruit brown; ripe in October.

1517. *A.* incàna.

*Varieties.*

♆ A. *i.* 2 *laciniàta* Lodd. Cat. ed. 1836. — The leaves are slightly laciniated. Horticultural Society's Garden.

♆ A. *i.* 3 *glaúca.* *A.* glaúca *Michx. N. Amer. Sylv.*; *B*étula incàna var. glaúca *Ait.*; Black Alder, *Amer.* — The leaves are dark green above, and glaucous beneath; the petioles reddish. This is one of the most beautiful trees of the genus.

♆ A. *i.* 4 *angulàta* Ait. — Leaves green underneath, with the petioles also of a dark green.

*Other Varieties.* A. *americàna* Lodd. Cat., and A. *canadénsis* Lodd. Cat., appear to belong to this species; but the plants in the Hackney arboretum are so small, that we have not been able to satisfy ourselves that they are sufficiently distinct to constitute even varieties.

*A.* incàna differs from the common alder, in the leaves being pointed, in the leaves and the young wood not being glutinous, in their hoary appearance, and in the absence of tufts of hair in the axils of the nerves of the leaves It forms a very handsome tree, will grow in either dry or moist soil, and well deserves a place in ornamental plantations.

♃ 4. *A.* SERRULA'TA *Willd.* The saw-*leaved* Alder.

*Identification.* Willd. Sp. Pl., 4. p. 336.; Pursh Sept., 2. p. 623.; Michx. N. Amer. Syl., 2. p. 113.
*Synonymes.* *B*étula serrulàta *Ait. Hort. Kew.* 3. p. 338.; *B.* rugòsa *Ehrh. Beytr.* 3. p. 21.; ? *A.* americàna *Lodd. Cat.* 1836; common Alder, *Amer.*; Hazel-leaved Alder.
*Engravings.* Wang. Amer., t. 29. f. 60.; Michx. N. Amer. Syl., t. 75. f. 1.; and our *fig.* 1518. from a living specimen.

*Spec. Char., &c.* Leaves obovate, acuminate; veins and their axils hairy on the under side. Stipules elliptic, obtuse. (*Willd.*) A deciduous shrub. North America, in swamps and on river sides. Height 6 ft. to 10 ft. Introduced in 1769. Flowers greenish; March and April. Fruit brown; ripe in October or November.

Its leaves are of a beautiful green, about 2 in. long; oval, distinctly furrowed on the surface, and doubly denticulated at the edge. The wood, when cut into, is white; but like that of all the alders, it becomes reddish when it comes in contact with the air.

1518. *A.* serrulàta.

1519. *A.* undulàta.

♃ 5. *A.* UNDULA'TA *Willd.* The waved-*leaved* Alder.

*Identification.* Willd. Sp. Pl., 4. p. 336.; Baum., p. 21.; Lodd Cat., ed. 1836.
*Synonymes.* *B*étula crispa *Ait. Hort. Kew.* 3. p. 339.; *B. A*'lnus var. crispa *Michx. Fl. Bor. Amer.* 2. p. 181.; *A.* crispa *Pursh Fl. Amer. Sept.* 2. p. 623, *N. Du Ham.* 2. p. 216.
*Engraving.* Our *fig.* 1519. from a specimen in the British Museum.

*Spec. Char., &c.* Leaves oblong, acute, rounded at the base; petioles and veins hairy on the under side; axils of the veins naked; stipules ovate-oblong. (*Willd.*) A deciduous shrub. Canada, and on high mountains in sphagnous swamps in Pennsylvania. Height ? 10 ft. to 15 ft. Introduced in 1782. Flowers greenish; March and April. Fruit brown; ripe in October.

♃ 6. *A.* CORDIFO'LIA *Lodd.* The heart-leaved Alder.

*Identification.* Lodd. Bot. Cab., t. 1231.
*Synonyme.* *A.* cordàta *Tenore Prod.* 54., *Hayne Dend.* p. 153.
*Engravings.* Bot. Cab., t. 1231.; the plate of this species in Arb. Brit., 1st edit. vol. vii.; and our *fig.* 1520.

*Spec. Char., &c.* Leaves heart-shaped, acuminate, dark green and shining (*Tenore.*) A tree of similar magnitude to the common alder. Calabria and Naples, in woods. Height 15 ft. to 20 ft. Introduced in 1820. Flowers greenish brown; March and April, before the developement of the leaves. Fruit brown; ripe in October.

1520. *A.* cordifòlia.

A large and very handsome round-headed tree, with broad, deep green, shining leaves, deeply heart-shaped at the base. It grows with rapidity in dry soil, and is one of the most interesting ornamental trees that have of late years been introduced. It is a most distinct species ; and, though a native of the kingdom of Naples, it is perfectly hardy. It ripens seeds in the climate of London, and might easily be rendered as common as *A.* glutinòsa.

### ✠ 7. *A.* vi′ridis *Dec.* The green-*leaved* Alder.

*Identification.* DeCandolle Pl. Fl., 3. p. 304.
*Synonymes.* *A.* ovàta *Lodd. Bot. Cab.* t. 1141. ; *A′*lnus fruticòsa *Schmidt* ; *B*étula ovàta *Schrank Sal.* No. 159. ; *B. A′*lno-*B*étulæ *Ehrh. Beytr.* 2. p. 72. ; *B.* vìridis *Hort.*
*Engravings.* Dend. Brit. t. 96. ; Bot. Cab., t. 1141. ; Schmidt Œstr. Baum., 3. t. 189. ; and our *fig.* 1521., in which *a* is the ament, or male catkin ; *b*, the male flower magnified ; *c*, the stamen magnified ; *d*, a longitudinal section of the cone or female catkin ; *e* and *g*, transverse sections of the cone, to show the position of the scales ; *f*, the female catkins ; *h*, the samara, or seed, with its wings.

*Spec. Char., &c.* Leaves ovate, doubly serrated, glabrous. Peduncles of the female catkins branched. Scales of the strobiles having equal lobes, truncate-nerved. (*Willd.*) A large deciduous shrub, or low bushy tree. Hungary, Styria, and Carinthia, on high mountains ; and Germany, in the neighbourhood of Saltzburg. Height 5 ft. to 6 ft. Introduced in 1820. Flowers greenish brown ; March and April. Fruit brown ; ripe in August.

1521. *A.* viridis.

This plant is considered by many botanists as intermediate between the alders and the birches. It agrees with the alders, in having the peduncles of the female catkins ramose; and in general appearance it resembles the *A′*lnus incàna in a young state : but it belongs to the birches, by the parts of its fructification, and by the somewhat greater number of its stamens.

*Other Species of* A'*lnus*. A. *barbàta* Meyer (our *fig*. 1522.), *A.* obtusifòlia *Royle*, is very abundant on the banks of the Jumna and Tonce. A. *elongàta* Royle occurs in Cashmere; and A. *nepalénsis* Wall. (Pl. As. Rar. t. 131.) on the mountains surrounding the valley from which it was named. (*Illust*. p. 341.) It appears probable, that *A.* nepalénsis, a tree from 30 ft. to 40 ft. high, may prove sufficiently hardy to bear the climate of London. A. *subcordàta* Meyer (our *fig*. 1523.) was raised from seeds in the Birmingham Botanic Garden in 1838; and A. *jorullénsis* in the Horticultural Society's Garden in 1839.

1522. *A.* barbàta.

1523. *A.* subcordàta.

A. *acuminàta* Humb. et Bonpl. (Mém. Mus. vol. xiv. p. 464. t. 22.; our *fig*. 1524.) has the leaves ovate, or ovate-oblong, acuminate, roundish at the base, doubly serrated, glabrous above; the veins downy beneath. Panicle naked. Female catkins terminal. (*Mirb.*) A tree. Peru. Leaves 3 in. to 6 in. long, and 1½ in. to 3 in. broad.

1524. *A.* acuminàta.

A. *castaneifòlia* Mirb. (Mém. Mus. vol. xiv. t. 21.; and our *fig*. 1525.) has the leaves oblong-elliptic, blunt, repand, or oblong-lanceolate, erose or dentate, petiolate; glabrous above; the axils of the veins downy beneath, panicle leafy at the base. Male catkins leafy, erect. (*Mirb.*) A tree. Tarma in Peru. Leaves 3 in. to 5 in. long, and 10 lin. to 15 lin. broad. Stipules small, glabrous, membranaceous, linear-lanceolate. Male catkins 1 in. to 2 in. long, more slender than in *A.* glutinòsa, and 4 or 5 in a panicle. Female catkins about 2 in. long, 4 or 5 on a common pedicel. (*Mém. Mus.*, xiv. 464.)

1525. *A.* castaneifòlia.

## Genus II.

*BE'TULA Tourn.* The Birch. *Lin. Syst.* Monœ'cia Polyándria.

*Identification*. Tourn., t. 360.; Lin. Gen., 485.; Fl. Br., 1011.
*Synonymes*. Bouleau, *Fr.*; Betula, *Ital.*; Abedul, *Span.*; Betulla, *Port.*; Birke, *Ger.*; Berk, *Dutch*; Birk, *Danish and Scotch*; Biörk, or Börk, *Swedish*; Beresa, *Russian*; Brzoza, *Polish*.
*Derivation*. From *betu*, its Celtic name; or, according to others, from the Latin word *batuere*, to

beat; from the fasces of the Roman lictors, which were always made of birch rods, being used to drive back the people. Pliny derives the name from *bitumen*.

*Gen. Char., &c.* *Barren flowers.* *Catkins* cylindrical, lax, imbricated all round with ternate concave scales the middle one largest, ovate. *Corolla* none. *Filaments* 10 to 12, shorter than the middle scale, to which they are attached. *Anthers* roundish, 2-lobed.—*Fertile flowers.* *Catkins* similar but more dense; scales horizontal, peltate, dilated outwards, 3-lobed, 3-flowered. *Corolla* none. *Germen* compressed. *Styles* 2. *Stigma* simple. *Nut* oblong, deciduous, winged at each side. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; serrated or entire. *Flowers* whitish, in pendulous catkins. — Trees or shrubs, deciduous, with round slender branches, and the bark in most species in thin membranous layers. Natives of Europe, Asia, and North America.

The species are generally found in mountainous rocky situations in the middle of Europe; but they grow wild in plains and peaty soils in the northern regions. The common birch is one of the hardiest of known trees; and there are only one or two other species of ligneous plants which approach so near to the North Pole. They all ripen seeds in the climate of London; and are all of the easiest culture in any ordinary soil; but, being hair-rooted, they do not grow so well in very strong clays; nor do plants of this genus, when raised from layers or cuttings, grow so freely as in the case of most other genera. The leaves of the birch having little succulency, and being astringent and aromatic, are very rarely subject to the attacks of insects. The wood of all the species is much less durable than the bark. The leaves of most of the species die off of a rich yellow, and some of them of a deep red or scarlet.

*Leaves small. Natives chiefly of Europe.*

♆ 1. *B.* A'LBA *L.* The white, *or common*, Birch.

*Identification.* Lin. Sp. Pl., 1393.; Engl. Fl., 4. p. 153.; Hook. Br. Fl., 3d ed., p. 411.
*Synonymes.* *B.* pubéscens *Ehrh. Arb.* 67.; Bétula *Raii Syn.* 445.; *B.* ætnénsis *Rafi.*; Bouleau commun, *Fr.*; gemeine Birke, *Ger.*; Bedollo, *Ital.*
*Engravings.* Eng. Bot., t. 2198.; and our *fig.* 1528.

*Spec. Char., &c.* Leaves ovate, acute, somewhat deltoid, unequally serrated, nearly glabrous. (*Smith.*) A deciduous tree. Europe, more especially in the colder regions; a diminutive shrub in the extreme north, but a tree from 50 ft. to 60 ft. high in the middle regions. Flowers whitish; in Lapland, in May; and in the Apennines, and in England, in February and March. Fruit brown; ripe in September and October. Decaying leaves rich yellow, scarlet, or red.

*Varieties.*

♆ B. *a.* 2 *péndula* Smith. *B.* péndula *Roth Germ.* i. p. 405. pt. 2. p. 476.; *B.* verrucòsa *Ehrh. Arb.* 96.; *B.* péndulis vírgulis *Locs. Pruss.*; the weeping Birch.—A well-known tree, distinct from the species in having the shoots more slender, smoother, and pendulous. (See the plate of the young tree in *Arb. Brit.*, 1st edit., vol. vii.)

♆ B. *a.* 3 *pubéscens.* *B.* pubéscens *Ehrh. Beitr.* vi. 98. (Our *fig.* 1526.) — The leaves covered with white hairs.

♆ B. *a.* 4 *póntica.* *B.* póntica *Lodd. Cat.* ed. 1836. (Our *fig.* 1527.) —Leaves somewhat larger than in the species, and the plant of more robust growth.

1526. *B.* a. pubéscens.

1527 *B.* a. póntica.

- B. *a.* 5 *urticifòlia.* B. urticifòlia *Lodd. Cat.*— Leaves deeply laciniated, serrated, and hairy.
- B. *a.* 6 *dalecárlica* L. Supp. 416. — Leaves almost palmate, with the segments toothed; "cut like those of hemp," according to Bosc.
- B. *a.* 7 *macrocárpa* Willd. — Female catkins twice as long as those of the species.
- B. *a.* 8 *fòliis variegàtis* Dumont. — Leaves blotched with yellowish white.

*Other Varieties. B.* dàùrica appears to be a variety of *B.* álba, stunted from the climate in which it grows; and the same observation will apply to *B.* sibírica, and some others, enumerated in the *Catalogue* of Messrs. Loddiges, for 1836. *B.* excélsa and *B.* nìgra of some of the London gardens are mere varieties of the common birch, and quite distinct from the species described by botanists under these names, which are natives of America. (See *Gard. Mag.*, vol. xi. p. 502. 689.) *B.* undulàta, *B.* Thouini*àna*, and *B.* Físcheri also appear to us to belong to *B.* álba; but the plants being exceedingly small, we are not able to determine this with certainty.

The rate of growth of the common birch is considerable when the tree is young, averaging from 18 in. to 2 ft. a year for the first 10 years; and young trees cut down to the ground often make shoots 8 or 10 feet long in one season. The duration is not great, the tree attaining maturity, in good soils, in from forty to fifty years; but, according to Hartig, seldom lasting in health till it attains a hundred years. The wood is white, shaded with red; of a medium durability in temperate climates, but lasting a long time when it is grown in the extreme north. The grain of the wood is intermediate between coarse and fine. It is easily worked while green; but it chips under the tool when dry. It weighs, when green, 65 lb. 6 oz.; half-dry, 56 lb. 6 oz.; and dry, 45 lb. 1 oz. Though the birch may be propagated by layers and even by cuttings, yet plants are not readily produced otherwise than by seed; and those of certain varieties, which are procured from layers or by inarching, never appear to grow with the same vigour as seedlings. Birch seed ripens in September and October, and may be either gathered and sown immediately, or preserved in a dry loft, and sown in spring. Sang directs particular attention to be paid to gathering the seeds only from weeping trees; and this we know to be the directions given to the collectors employed by the nurserymen in the north of Scotland. If the seeds are to be sown immediately, the catkins may be gathered wet; but, if they are to be kept till spring, they ought not to be gathered except when quite dry; and every day's gathering should be carried to a dry loft and spread out thinly, as they are very apt to heat when kept in sacks or laid up in heaps. The seeds should be sown in very fine light, rich soil, in beds of the usual width, and very slightly covered. Boutcher says: — "Sow the seeds and clap them into the ground with the back of the spade, without any earth spread over them, and throw a little peas haulm over the beds for three or four weeks, till the seeds begin to vegetate. The peas haulm will keep the ground moist, exclude frost, and prevent the birds from destroying the seeds." (*Treat. on Forest Trees*, p. 113.) "It is scarcely possible," Sang observes, "to cover birch seeds too little, if they be covered at all." The plants, if sown in autumn, will come up in the March or April following. If sown in spring, they will come up in May or June; which, in very cold climates, is a preferable season. If any danger is apprehended

1528. *B.* álba.

from moisture in the soil during winter, the alleys between the beds may be deepened, so as to act as drains. In the nursery lines, the plants require very little pruning, and their after-care, when in plantations, is equally simple.

### ♣ ♆ 2. *B.*(? *A.*) DÄU'RICA *Pall.* The Daurian Birch.

1529. *B.* däùrica.

*Identification.* Pall. Ross., 1. p. 60.; Willd. Sp. Pl., 4. p. 463.; N. Du Ham., 3. p. 204.
*Synonymes.* *B.* excélsa canadénsis *Wang. Beitr.* p. 86.; Bouleau de Sibérie, *Fr.*
*Engravings.* Pall. Ross., 1. t. 39.; Willd. Baum., t. 1. f. 3. and 4.; and our *fig.* 1529.

*Spec. Char., &c.* Leaves ovate, narrow at the base, quite entire, unequally dentate, glabrous. Scales of the strobiles ciliated on their margins; side lobes roundish. (*Willd.*) A deciduous tree. Däuria, and part of Asiatic Siberia; but not in European Siberia, nor in Russia. Height 20 ft. to 30 ft. Introduced 1796. Catkins whitish brown, larger than those of the common birch; February and March. Fruit brown; ripe September. Decaying leaves red or yellow.

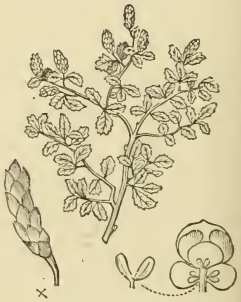
*Variety.*

♣ ♆ B. (? *A.*) *d.* 2 *parvifòlia* Hayne Dend. p. 167.—Leaves smaller than those of the species.

### ♣ 3. *B.*(? *A.*) FRUTICO'SA *Pall.* The shrubby Birch.

*Identification.* Pall. Ross., 1. p. 62.; Willd. Sp. Pl., 4. p. 466.; N. Du Ham., 3. p. 208.
*Synonymes.* *B.* hùmilis *Schrank Sal.* p. 56.; *B.* quebeccénsis *Schrank der Gesells. Naturf. Freunde*, 5. p. 196.
*Engravings.* Pall. Ross., 1. t. 40.; Dend. Brit., t. 154.; and our *fig.* 1530.

*Spec. Char., &c.* Leaves roundish-ovate, nearly equally serrate, glabrous. Female catkins oblong. (*Willd.*) A deciduous shrub. Eastern Siberia, Germany, and Canada. Height 5 ft. to 6 ft. in moist situations, but much higher on mountains. Introduced in 1818. Catkins whitish brown; February and March. Fruit brown; ripe in October or November.



1530. *B.* fruticòsa.

### ♣ 4. *B.* (? *A.*) PU'MILA *L.* The *hairy* dwarf Birch.

*Identification.* Willd. Sp. Pl., 4. p. 467.; Pursh Fl. Amer. Sept., 2. p. 622.; N. Du Ham., 3. p. 207.
*Synonyme.* *B.* nàna *Kalm Itin.* 2. p. 263.
*Engravings.* Jacq. Hort. Vind., t. 122.; Dend. Brit., t. 97.; and our *fig.* 1531.

*Spec. Char., &c.* Branches pubescent, without dots. Leaves roundish ovate, on long footstalks, densely clothed with hairs on the under surface. Female catkins cylindrical. (*Willd.*) A deciduous shrub. Canada, in bogs, and on high mountains in New York and Pennsylvania. Height 2 ft. to 3 ft. Introduced in 1762. Catkins whitish; May and June. Fruit brown.

The root is red, and is used for veneering and inlaying.

1531. *B.* (?*A.*) pùmila.

### ♣ 5. *B.* NA'NA L. The dwarf Birch.

*Identification.* Lin. Sp. Pl., 1394.; Eng. Fl., 4. p. 154. Pursh Fl. Amer. Sept., 2. p. 262.

*Synonymes.* *B.* nàna Suecòrum *Bromel. Chl. Goth.* 11.; *B.* palústris pùmila, &c., *Cels. Act. Suec.* 1732, 3.
*Engravings.* Am. Acad., 1. t. 1.; Eng. Bot., t. 2326.; and our *fig.* 1532.

*Spec. Char., &c.* Leaves orbicular, crenate, reticulated with veins beneath. A shrub, with numerous branches, slightly downy when young, and beset with numerous, little, round, firm, smooth, sharply crenated leaves, beautifully reticulated with veins, especially beneath; and furnished with short footstalks, having a pair of brown lanceolate stipules at their base. Catkins erect, stalked, cylindrical, obtuse; the barren ones lateral, and the fertile ones terminal. Scales of the latter 3-lobed, 3-flowered, permanent. Stigmas red. (*Smith.*) A bushy deciduous shrub. Lapland, Sweden, Russia, and Scotland, in Europe, and Hudson's Bay, and other parts of Canada, in America; on mountains, but almost always in boggy places. Height 2 ft. to 3 ft.; in British gardens 6 ft. to 8 ft. Catkins whitish green; April and May. Fruit brown; ripe in October.

1532. *B.* nàna.

*Variety.*

ϖ B. *n.* 2 *stricta* Lodd. Cat., ed. 1836, is somewhat more erect in habit than the species.

ϖ 6. *B.* (? n.) GLANDULO'SA *Michx.* The glandular-*branched* Birch.

*Identification.* Michx. Fl. Bor. Amer., 2. p. 180.; Pursh Fl. Amer. Sept., 2. p. 622.
*Engraving.* Our *fig.* 1533. from a specimen in the British Museum.

*Spec. Char., &c.* Branches beset with glandular dots, glabrous. Leaves obovate, serrate, quite entire at the base, glabrous, almost sessile. Female catkins oblong; scales half 3-cleft. Seeds round, with narrow margins. (*Willd.*) A handsome little deciduous shrub. Canada, about Hudson's Bay; and on the borders of lakes on the high mountains of New Jersey and Pennsylvania. Height 2 ft. Introduced ?.

Corresponds in America with the *B.* nàna of Europe, and probably only a variety of that species. Catkins whitish; May.

1533. *B.* (? n.) glandulòsa.

*Leaves large. Natives of North America.*

☥ 7. *B.* POPULIFO'LIA *Ait.* The Poplar-leaved Birch.

*Identification.* Ait. Hort. Kew., 3. p. 336.; Pursh Fl. Amer. Sept., vol. 2. p. 620.; Michx. N. Amer. Syl., vol. 2. p. 97.
*Synonymes.* *B.* acuminàta *Ehrh. Beit.* 6. p. 98.; *B.* lénta *Du Roi Harb. Baum.* ed. 1. p. 92.; white Birch and Oldfield Birch, *Amer.*
*Engravings.* Michx. N. Amer. Syl., 2. p. 97.; Michx. N. Amer. Syl., vol. 2. t. 71.; and our *fig.* 1534.

*Spec. Char., &c.* Leaves deltoid, much acuminated, unequally serrated, quite smooth. Scales of the strobiles having roundish side lobes. Petioles glabrous. (*Willd.*) A tree, in every respect closely resembling *B.* álba, but growing with less vigour, and not attaining so large a size as that species. Canada to Pennsylvania, in barren rocky woods. Introduced in 1750. Flowers greenish white; April and May.

*Varieties.*

☥ B. p. 2 *laciniàta.* *B.* laciniàta *Lodd. Cat.* ed. 1836.—Leaves large, shining, and deeply cut.

☥ B. p. 3 *péndula.* *B.* pendula *Lodd. Cat.* ed. 1836.—Spray drooping, like that of the weeping variety of the common birch.

A very graceful tree, with rather broader leaves than the common birch. The wood is very soft, brilliant when polished, and perfectly white; but it speedily decays, and, in America, is employed for no purpose, not even for fuel. The twigs are too brittle for common brooms. When the plants are raised from seed, they make very handsome trees; and, as seed is freely produced, this mode ought always to be adopted; but plants from layers seldom attain any magnitude.

1534. *B.* populifòlia.

♆ 8. *B.* PAPYRA`CEA *Ait.* The Paper Birch.

*Identification.* Ait. Hort. Kew., 3. p. 337.; N. Du Ham. 3. p. 205.; Pursh Fl. Amer. Sept., 2. p. 621.
*Synonymes.* *B.* papyrífera *Michx. Fl. Bor. Amer.* 2. p. 180.; *B.* lanceolàta *Hort.*; *B.* rùbra *Lodd. Cat.* ed. 1836; *B.* canadénsis *Lodd. Cat.*; *B.* nìgra *of the Paris nurseries;* Canoe Birch, white Birch, *Amer.*; Betula da carta, *Ital.*
*Engravings.* Michx. N. Amer. Syl., 2. t. 35.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our *figs.* 1535. and 1536.

*Spec. Char., &c.* Leaves ovate, acuminate, doubly serrate; veins hairy beneath; petiole glabrous. Female catkins on long footstalks, drooping; scales having the side lobes short, somewhat orbiculate. (*Willd.*) A deciduous tree. North America. Height 60 ft. to 70 ft. Introduced in 1750. Flowers greenish white; May and June. Fruit brown; ripe in October. Decaying leaves greenish yellow.

*Varieties.*

♆ B. *p.* 2 *fúsca.* *B.* fúsca *Bosc.* — Leaves smaller than those of the species, and less downy.

♆ B. *p.* 3 *trichóclada* Hort. — Branches extremely hairy, and twigs in threes; leaves heart-shaped. Horticultural Society's Garden.

♆ B. *p.* 4 *platyphýlla* Hort. — Leaves very broad. Hort. Soc. Garden.

The branches are much less flexible than those of the common birch, and are more ascending in direction. The bark, in Canada and the district of Maine, is employed for many purposes. It is placed in large pieces immediately under the shingles of the roof, to prevent the water from penetrating through it. Baskets, boxes, and portfolios are made of it, which are sometimes embroidered with silk of different colours. Divided into very thin sheets, it forms a substitute for paper; and, placed between the soles of the shoes, and in the crown of the hat (as the bark of the birch of Europe is in Lapland), it is a defence against humidity. But the most important purpose to which it is applied, and one in which it is replaced

1535. *B.* papyràcea.

1536. *B.* papyràcea.

by the bark of no other tree, is the construction of canoes. The plant usually known by the name of *B.* papyràcea, in the London nurseries, is the *B.* rùbra of Michaux, jun., the *B.* lanulòsa of Michaux, sen., and our *B.* nìgra, No. 9. This mistake has arisen from the bark of *B.* nìgra, even in trees not above 1 in. in diameter, separating from the trunk, and rolling up in very thin paper-like laminæ.

♃ 9. *B.* NI'GRA *L.* The black Birch.

*Identification.* Willd. Sp. Pl., 4. p. 464.; Pursh Fl. Amer. Sept. 2. p. 621.; N. Du Ham., 3. p. 203.
*Synonymes.* *B.* lanulòsa *Michx. Fl. Bor. Amer.* 2. p. 181.; ? *B.* rùbra *Michx. Arb.* 2. p. 162.; *B.* angulàta *Lodd. Cat.* ed. 1836; red Birch, *Amer.*; Betula da Canoa, *Ital.*
*Engravings.* Dend. Brit., t. 153.; Michx. Fl. Bor. Amer., 2. t. 3.; Bot. Cab., t. 1248.; the plates of this tree in Arb. Brit. 1st edit., vol. vii.; and our *figs.* 1537. and 1538.

*Spec. Char., &c.* Leaves rhomboid-ovate, doubly serrated, acute; pubescent beneath, entire at the base. Scales of the strobiles villose; segments linear, equal. (*Willd.*) A deciduous tree, with the bark rising in very thin paper-like laminæ. New Jersey to Carolina. Height 60 ft. to 70 ft. Introduced in 1736. Flowers greenish white; May. Fruit brown; ripe in June.

1537. *B.* nìgra.

1538. *B.* nìgra.

The epidermis is reddish, or of a cinnamon colour. The petioles are short and downy. The leaves, on young trees, are about 3 in. long, and 2 in. broad, of a light green on the upper surface, and whitish beneath, though on old trees they are much smaller: they are doubly denticulated at the edge, very acuminate at the summit, and terminated at the base in an acute angle, more regular than is seen in the leaf of any other tree. The female catkins in America are 5 or 6 inches long, straight, and nearly cylindrical; about London, they are not half the size.

♃ 10. *B.* EXCE'LSA *H. Kew.* The tall Birch.

1539. *B.* excélsa.

*Identification.* Ait. Hort. Kew., 3. p. 337.; Pursh Fl. Amer. Sept., 2. p. 261.; N. Du Ham., 3. p. 203.
*Synonymes.* *B.* lùtea *Michx. N. Amer. Syl.* 2. 103.; ? *B.* nìgra *Du Roi Herb. Baum.* 1. p. 148.; yellow Birch, *Amer.*
*Engravings.* Michx. N. Amer. Syl., 2. 103.; Wats. Dend. Brit., t. 95.; N. Du Ham., 3. t. 52.; Willd. Baum., t. 1. f. 2.; and our *fig.* 1539. from Michaux, and *fig.* 1540. from the Nouv. Du Ham.

*Spec. Char., &c.* Leaves ovate, acute, serrated; petioles pubescent, shorter than the pedun-

1540. *B.* excélsa.

cles. Scales of the strobiles having the side lobes roundish (*Willd.*) A deciduous tree. Nova Scotia to Pennsylvania. Height 70 ft. to 80 ft. Introd. 1767. Flowers greenish white; May. Fruit brownish; ripe in October.

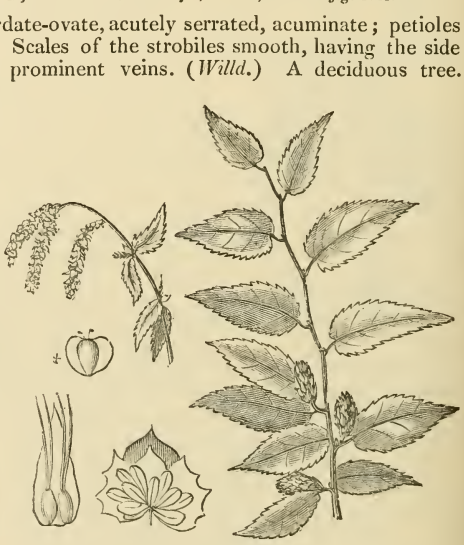
The young shoots and leaves, at their unfolding, are downy. Towards the end of summer, when fully expanded, the leaves are perfectly smooth, except the petiole, which remains covered with fine short hairs. The leaves are about 3½ in. long, and 2½ in. broad; oval, acuminate, and bordered with sharp irregular teeth. The epidermis is of a brilliant golden yellow; and the leaves the bark, and the young shoots, have all an agreeable taste and smell, similar to those of the pliant birch (*B.* lénta), though they lose it in drying. In its fructification, this species nearly resembles *B.* lénta.

### ✱ 11. *B.* LE'NTA *L.* The pliant Birch.

*Identification.* Willd. Sp. Pl., 4. p. 464.; Pursh Fl. Amer Sept., 2. p. 621.; N. Du Ham., 3. p. 205.
*Synonymes.* *B.* carpinifòlia *Ehrh. Beitr.* 6. p. 99.; *B.* nigra *Du Roi Herb.* 1. p. 93; the plant is under both these names, and also under that of *B.* lénta, in Loddiges's arboretum; black Birch, Cherry Birch, Canada Birch, Sweet Birch, Mountain Mahogany, *Amer.*; Bouleau Mérisier, *Fr.*; Betula della Virginia, *Ital.*
*Engravings.* Wang. Beitr. t. 15. f. 34.; Michx. N. Amer. Syl., 2. 106.; and our *fig.* 1541.

*Spec. Char., &c.* Leaves cordate-ovate, acutely serrated, acuminate; petioles and nerves hairy beneath. Scales of the strobiles smooth, having the side lobes obtuse, equal, with prominent veins. (*Willd.*) A deciduous tree. Canada to Georgia. Height 60 ft. to 70 ft. Introd. 1759. Flowers greenish white; May and June. Fruit brown; ripe in November.

According to Pursh, this is an elegant and large tree, the most interesting of its genus, on account of the excellence of its wood. Michaux strongly recommends the tree for cultivation, on a large scale, in the north of France, in England, and in Germany; and to the lovers of curious trees, "as eminently adapted, from the beauty of its foliage and the agreeable odour of its flowers, to figure in their parks and gardens."



1541. *B.* lénta.

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*Species of Birch lately introduced.*—In Royle's *Illustrations* several species of birch are mentioned as occupying the loftiest stations in the mountains of Nepal, and other parts of the Himalayas: *B. Bhojpúttra* Wall., *B.* nítida, *B.* cylindrostàchya, *B.* resinífera *Royle*, and *B.* acuminàta *Wall.*

B. Bhojpúttra *Wall.* The Indian Paper Birch. Leaves oblong-acute, with nearly simple serratures, somewhat heart-shaped at the base; their stalks, veins, and twigs hairy. Female catkins erect, cylindrical, oblong. Bracteas smooth, woody, two-parted, blunt, much longer than the fruit, which has narrow wings. A tree, found on the Alps of Gurwal, in Kamaon, where its thin delicate bark furnishes the masses of flexible laminated matter, of which great quantities are brought down into the plains of India, for lining the tubes of hookahs; and which is used by the mountaineers, instead of paper, for writing upon. (*Wall. Plant. As. Rar.*, vol ii. p. 7.) The bark of this species is of a pale cinnamon colour. Raised in the Hort. Soc. Gard. in 1840.

B. *acuminàta* Wall. Leaves ovate lanceolate, sharply serrated, taper-

pointed, smooth, dotted beneath; leaf-stalks and twigs quite smooth; ripe catkins very long, pendulous, cylindrical, crowded; the rachis, and the bracteas, which are auricled at the base, downy. Found on many of the mountains of Nepal, and in the great valley of that country, following the course of rivers. The flowers and fruit are produced from December to April. It forms a very large and noble tree, from 50 ft. to 60 ft. high, of an oval shape, being covered with branches from its base. The wood is stated by Dr. Wallich to be greatly esteemed by the inhabitants, who employ it for all sorts of purposes where strength and durability are required. (*Wall. Pl. As. Rar.*, t. 109.) Doubtless as hardy as the preceding species.

B. *nitida*. The shining Birch. Leaves oblong, taper-pointed, with fine double serratures, the twigs and leaf-stalks hairy. Female catkins pendulous, cylindrical, crowded. Bracts three-lobed, hairy, with the lengthened middle lobe longer than the fruit. A tree, found in Kamaon.

B. *cylindrostàchya*. Leaves oblong, taper-pointed, heart-shaped, with fine double serratures; twigs, leaf-stalks, and veins downy; female catkins pendulous, very long, cylindrical; fruit deeply two-lobed; bracts linear lanceolate, blunt, membranous, with two teeth at the base, fringed with hairs. A tree, found in Kamaon. Most probably hardy, and, like the preceding species, if not already introduced it will very soon be so.

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## Order LXX. CORYLA'CEÆ, or CUPULI'FERÆ.

*Ord. Char. Flowers* unisexual.—*Male flowers* disposed in cylindrical catkins. *Perianth* small, scale-formed. *Filaments* usually free.—*Female flower. Involucrum* various, 1- or many-flowered. *Perianth* many-toothed, adhering to the ovarium. *Ovarium* 1- or many-celled, containing many ovula. *Styles* 2—3, or multiplied. *Stigmas* distinct. The involucrum, after florescence, becoming enlarged, and enclosing, in part or altogether, the pericarps which are either solitary or many together. *Acorns*, or nuts, 1-celled, 1-seeded, by abortion. *Seed* pendulous. *Albumen* none. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous or evergreen; lobed, serrated, or entire. *Flowers* in catkins, bracteate, sometimes pedunculate.—Large trees, deciduous and evergreen; natives of the temperate regions of every part of the world.

The hardy ligneous genera belonging to this order are six, which are thus contradistinguished:—

Que'rcus *Lin.* Monœcious. — Male flowers in loose pendulous catkins. Stamens 5—10. — Female flowers within an involucrum, which is composed of numerous imbricate scales combined into a cup, which at length surrounds the acorn at the base.

Fa'gus *Tourn.* Monœcious.—Male flowers in dense pendulous catkins. Stamens 8. — Female flowers 2, within a 4-lobed involucrum, which at length encloses the triangular nut echinated with soft spurs outside.

Casta'nea *Tourn.* Polygamous. — Male flowers clustered in long cylindrical catkins. Stamens 5—20. Hermaphrodite flowers about 3 within an involucrum, which is covered outside with branchy spines, and at length encloses a roundish nut. Stamens 12. Stigmas penciled.

Ca'rpinus *Tourn.* Monœcious. — Male flowers in long cylindrical catkins having the scales ciliated at their bases. Stamens 8—14.—Female flowers in loose strobiles or cones, each composed of a 3-lobed, 2-flowered, scale-formed involucrum. Stigmas 2. Nut bony at the base of the scale.

O'strya *Michx.* Monœcious. — Male flowers in long cylindrical catkins, each flower consisting of a scale and a branched filament. — Female flowers in strobiles, each composed of a scale-formed imbricated involucrum. Stigmas 2. Nut bony, at the base of the scale.

Co'rylus *Lin.* Monœcious. — Male flowers in long cylindrical catkins, which are composed of 3-lobed deltoid scales. Stamens 8. Anthers 1-celled.—

Female flowers numerous, enclosed in a scaly bud. Nut oval, smooth, at length surrounded by a lacerated involucrum.

## Genus I.

QUE'RCUS *L.* The Oak. *Lin. Syst.* Monœ'cia Polyándria.

*Identification.* Lin. Gen., 495.; Juss., 410.; Fl. Br., 1025.; Tourn., t. 349.; Lam., t. 779.

*Synonymes.* *Ilex Tourn.*; *Sùber Tourn.*; Derw, *Celtic*; Aaack, or Ac, *Saxon*; Al, Alon, or Allun, *Hebrew*; Drus, *Greek*; Chène, *Fr.*; Eiche, *Ger.*; Eik, *Dutch*; Quercia, *Ital.*; Encina, *Span.*

*Derivation.* From *quer*, fine, and *cuez*, a tree, *Celtic*, according to Lepelletier: but, according to others, from the Greek word *choiros*, a pig; because pigs feed on the acorns. The Celtic name for this tree (Derw) is said to be the root of the word Druid (that is, priest of the oak), and of the Greek name Drus. The Hebrew name for the oak (Al, or Alon) is said to be the origin of the old English word *llan* (originally signifying an oak grove, or place of worship of the druids, and afterwards, by implication, a town or parish), and also of the Irish words *clan* and *clun*. In the Book of Isaiah, xliv. 14., idols are said to be made of Allun, or Alon; that is, of oak. (*Lowth's Trans.*)

*Gen. Char., &c.* *Flowers* unisexual. — *Males* disposed in long, slender, pendulous catkins, in groups. Each flower consists of 8 or more stamens, and these are attended by 6—8 bracteas, that are coherent at the base, and resemble a 6—8-parted calyx. — *Female flowers* erect on axillary peduncles, a few upon a peduncle. Each flower consists of a pistil, whose ovary, and the basal part of whose style, are invested with an adnate calyx toothed at the tip. *Style* short. *Stigma* 3-lobed. *Fruit* an acorn; its lower part having an imbricate cup. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous or evergreen; entire, serrated, or lobed. *Flowers* greenish white. — Trees, chiefly large and deciduous; natives of Europe, Asia, and America.

The oaks, in point of usefulness to man, are only to be equalled by the pine and fir tribe. The latter may be considered the domestic, and the former the defensive, trees of civilised society. The oak is never found in perfection, except in a good soil, and in a temperate climate. Like almost all other plants, it will thrive in a deep sandy loam or in vegetable soil, but to attain its full size, and to bring its timber to perfection, it requires a soil more or less alluvial or loamy; and the European oaks are always most luxuriant, and produce the best timber, on a soil somewhat calcareous. No oak, in the temperate climates, is found of a large size at a great elevation above the level of the sea, or where the climate is very severe in spring. In the Himalayas, and in Mexico, oaks are found of large size on mountains; but then the climate, naturally hot, is only rendered temperate by elevation. All oaks whatever are impatient of spring frosts. The wood of most of the species of oaks is, comparatively with that of other trees, hard, compact, heavy, tough, and durable; and, in most, the entire plant, and more especially the bark, leaves, and fruit, abound in astringent matter and in tannin. The wood of the larger-growing European kinds, and more especially of the group *Ròbur*, is considered superior to all other European or American woods for ship-building. The wood of *Q.* álba, and that of *Q.* vìrens, are most esteemed for the same object in America. The wood of the group *Cérris* is also employed in ship-building in Turkey and Greece. The oak is generally propagated by seed, and time will be gained by sowing acorns where the plants are intended finally to remain. Varieties are propagated by inarching or whip-grafting, the latter being performed close to the surface of the ground on the collar of the plant; and the graft afterwards earthed up. All the American deciduous oaks may be grafted on *Q. Cérris*, and all the evergreen oaks, both European and American, on *Q. Ilex*. The mode of raising oaks from the acorn is the same in all the species. The acorns need not be gathered from the tree, but may be collected from the ground immediately after they have dropped; and, as in the case of other tree seeds, they may be either sown then, or kept till the following spring. If they are to be kept,

they should be made perfectly dry in the sun; or in an airy shade mixed with dry sand, in the proportion of three bushels of sand to one bushel of acorns, or with dry moss; and then excluded from the air and vermin, by being put into barrels or boxes, or laid up in a cellar, or buried in heaps, and covered with a sufficient thickness of earth to exclude the weather. If the acorns are to be transported from one country to another, the same mixing with dry sand or dry moss, and exclusion from the air, are adopted; but the more certain mode of retaining the vital principle in acorns is, to mix them with moist earth, or with moist live moss (*S*phágnum): in either of the latter mediums, they will germinate during a long voyage; but no evil will result from this, provided they are sown immediately on their arrival. When acorns are to be sown in a nursery, the soil ought to be thoroughly prepared and rendered fine; and, after the earth is drawn off the beds, or the drills opened, the acorns may either be scattered over the beds, or along the drills, so that the nuts may be about 2 in. apart; and, to regulate this distance with greater certainty, the sand may be separated from the acorns with a sieve. In either case, the acorns, before covering, must be patted down with the back of a spade in the beds, and with the back of a wooden-headed rake in the drills. The covering, which ought to be of well-broken soil, should vary in depth, according to the size of the acorn; 1½ in. being enough for those of the largest size, such as those of the groups *R*òbur, A'lbæ, &c.; and ½ in. for those of the smallest size, such as those of the groups *I*lex, *P*héllos, &c. No mode of depositing acorns in the soil can be worse than that of dropping them in holes made by a dibber. The acorn drops into the hole, and becomes wedged by its sides before it gets to the bottom; and, if the upper extremity of the acorn should be downwards instead of upwards, it can hardly be expected to grow. For this reason, the dibber should only be used in pulverised soils; and the point of the instrument should be of a diameter greater than the length of the largest acorn which has to be dropped into the hole. As acorns are greedily devoured by vermin, and especially by land rats and mice, they ought to be sown in an open part of the nursery, not near hedges, ditches, or houses; and where, whether in nurseries or in fields intended to become oak woods, much danger is apprehended from vermin, they ought not to be sown till late in March, so as to lessen the period between the depositing of the acorn and its becoming a plant.

As all oaks, when young, are remarkable for throwing down long and vigorous taproots, and producing few lateral ones, they ought to be sown where they are finally to remain, especially if the subsoil be good, and other circumstances not unfavourable; but, as this cannot always be the case, it is customary among nurserymen to transplant the oak at one or two years' growth, removing great part of the taproot; some of them, however, shorten the taproot without removing the plant, by inserting the spade obliquely in the soil, so as to cut through the roots, at from 6 in. to 8 in. beneath the surface; an operation most conveniently performed when the oaks are sown in drills; because in that case the spade can first be inserted all along one side of the drill, and then all along the other. The French nurserymen, when acorns, walnuts, and other tree seeds which send down very long taproots, are to be reared with a view to being transplanted, sometimes germinate them in moist earth, or in sawdust, placed in a temperature of 50° or 60°; and, after the radicle has been protruded two or three times the length of the acorn or nut, pinch off its extreme point before the seed is committed to the soil. This treatment, which is applicable, as we have seen in the case of the horsechestnut (see p. 125.), to most large-seeded trees, has the effect of immediately causing the taproot to throw out numerous lateral fibres; which is highly favourable for transplantation, though it is not so for the rapid growth of the tree for the first year or two afterwards. To counteract its effect in this respect, when the tree is planted where it is finally to remain, and has grown there two or three years, it ought to be cut down to the ground; after which it will throw up vigorous shoots, and send down perpendicular

roots; and if from the shoots one is selected to form the future tree, and the others carefully rubbed off, the tree will advance at as rapid a rate as if it had been sown where it was intended finally to remain; and, in cases where the subsoil is bad, much more so.

In the future culture of the oak, the trees generally require side-pruning when the object is a straight clean trunk. As most of the species grow erect, the hardier deciduous kinds are well adapted for hedgerows; but, as many of the American kinds are comparatively tender, they are most advantageously cultivated in masses. The group *I*'lex forms excellent evergreen hedges, and most of the species belonging to it endure the sea breeze. The Nepal species, as far as they have hitherto been introduced, require, even in the climate of London, the protection of a wall.

We have arranged the species in the following groups: —

A. *Leaves deciduous.*

A. *Natives of Europe.*

§ i. *Ro*'BUR. *British Oaks.* Leaves lobed and sinuated; dying off of a yellowish or russet brown. Bark rough. Buds ovate. Fructification annual. Cups imbricate.

§ ii. *Ce*'RRIS. *Turkey Oaks.* Leaves lobed and sinuated, or dentated; in some varieties sub-evergreen; always dying off of a dirty white. Bark rough. Buds furnished with linear stipules. Fructification biennial. Cups echinate, ramentaceous, or scaly-squarrose.

B. *Natives of North America.*

§ iii. A'LBÆ. *White Oaks.* Leaves lobed and sinuated; dying off more or less shaded with a violet colour. Bark white, and scaling off in thin laminæ. Fructification annual. Cup imbricate or echinate. Nut oblong, generally large.

§ iv. *P*RI'NUS. *Chestnut Oaks.* Leaves dentate; dying off of a dirty white, or of a rich yellowish orange. Bark white, rough, and scaling off. Fructification annual. Cup imbricate. Nut ovate, rather large.

§ v. RU'BRÆ. *Red Oaks.* Leaves lobed, sinuated, and deeply cut, mucronated; dying off of a deep red, scarlet, or purple. Bark blackish; smooth or furrowed, but never scaly. Fructification biennial. Nut ovate, and with a persistent style. Cup imbricate, large in proportion to the nut.

§ vi. NI'GRÆ. *Black Oaks.* Leaves obtusely and very slightly lobed; with mucros, which generally drop off when the leaves have attained their full size; leaves dying off of a blackish green, or very dark purplish red, and in America frequently persistent. Bark quite black, smooth, or furrowed; but never scaly. Fructification biennial. Cup imbricate. Nut with a persistent style, and sometimes marked with dark lines.

§ vii. *P*HE'LLOS. *Willow Oaks.* Leaves quite entire; dying off without much change of colour; but in America sometimes persisting during two or three years. Young shoots straight and wand-like. Bark very smooth, black, and never cracked. Fructification biennial. Cup imbricate and shallow. Nut roundish and very small.

B. *Leaves evergreen.*

A. *Natives of Europe.*

§ viii. *I*'LEX. *Holm, or Holly, Oaks.* Leaves ovate or oval, entire or serrated, with or without prickly mucros. Bark smooth and black, or rough and corky. Fructification biennial. Cup imbricate. Nut ovate, acuminate; sometimes very long in proportion to the cup.

B. *Natives of North America.*

§ ix. VIRE'NTES. *Live Oaks.* Leaves oblong-lanceolate; dentate and variously cut when young, but on full-grown trees quite entire. Bark smooth, black. Fructification biennial. Cup imbricate. Nut long.

c. *Natives of Nepal and Mexico.*

§ x. LANA'TÆ. *Woolly-leaved Oaks.* Leaves oval, oblong, or lanceolate; serrated or dentate; woolly beneath.

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## A. *Leaves deciduous.*

### A. *Natives of Europe.*

### § i. Ròbur. *British Oaks.*

*Sect. Char.* Leaves lobed and serrated; dying off of a yellowish or russet brown. Bark rough. Buds ovate. Fructification annual. Cups imbricate. — Trees from 30 ft. to above 100 ft. high.

♆ 1. *Q.* PEDUNCULA'TA *Willd.* The *common, or* peduncled, *British* Oak.

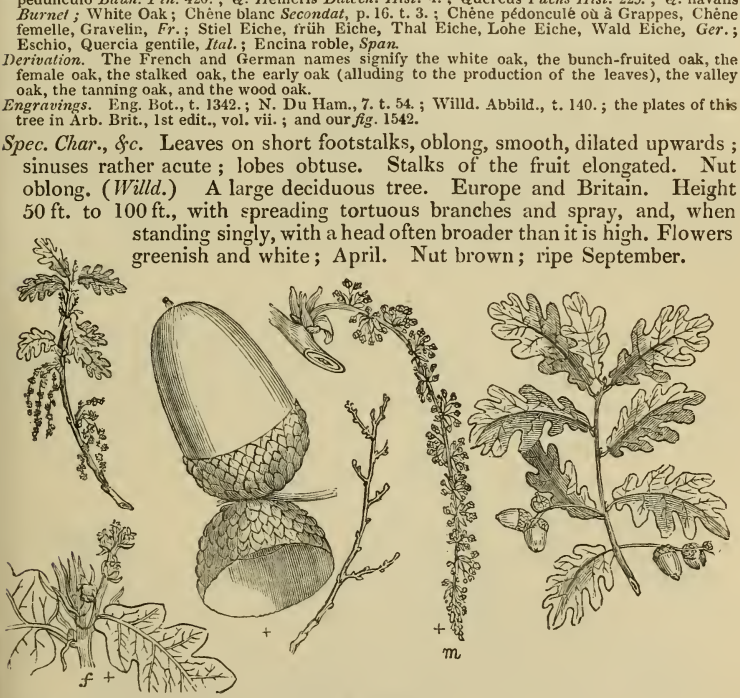
*Identification.* Willd. Sp. Pl., No. 65.; Ehr. Arb., 77.; Pl. Off., 169.

*Synonymes.* *Q. Ròbur Lin. Sp. Pl.* 1414., *Eng. Bot.* t. 1342.; *Q. R.* pedunculàtum *Mart. Fl. Rust.* t. 10.; *Q.* fœ'mina *Roth Germ.* 1. p. 408.; *Q.* racemòsa *N. Du Ham.* 7. p. 177.; *Q.* cum longo pedunculo *Bauh. Pin.* 420.; *Q.* Hémeris *Dalech. Hist.* 4.; *Quércus Fuchs Hist.* 229.; *Q.* navàlis *Burnet;* White Oak; Chêne blanc *Secondat*, p. 16. t. 3.; Chêne pédonculé où à Grappes, Chêne femelle, Gravelin, *Fr.*; Stiel Eiche, früh Eiche, Thal Eiche, Lohe Eiche, Wald Eiche, *Ger.*; Eschio, Quercia gentile, *Ital.*; Encina roble, *Span.*

*Derivation.* The French and German names signify the white oak, the bunch-fruited oak, the female oak, the stalked oak, the early oak (alluding to the production of the leaves), the valley oak, the tanning oak, and the wood oak.

*Engravings.* Eng. Bot., t. 1342.; N. Du Ham., 7. t. 54.; Willd. Abbild., t. 140.; the plates of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1542.

*Spec. Char., &c.* Leaves on short footstalks, oblong, smooth, dilated upwards; sinuses rather acute; lobes obtuse. Stalks of the fruit elongated. Nut oblong. (*Willd.*) A large deciduous tree. Europe and Britain. Height 50 ft. to 100 ft., with spreading tortuous branches and spray, and, when standing singly, with a head often broader than it is high. Flowers greenish and white; April. Nut brown; ripe September.




1542. Q. pedunculàta.

*Varieties.*

♆ Q. *p.* 2 *pubéscens* Lodd. Cat. ed. 1836.— Leaves downy beneath.

♆ Q. *p.* 3 *fastigiàta.* *Q.* fastigiàta *Lam.*; *Q.* pyramidàlis *Hort.*; Chêne Cyprès, Chêne des Pyrénées, *Fr.* (The plate of this tree in *Arb. Brit.*, 1st edit., vol. vii.; and our *fig.* 1543.)—A handsome deciduous tree, resembling in general form the Lombardy poplar. It is found in the valleys of the Western Pyrenees, and in the Landes near Bordeaux, though but sparingly, and frequently comes true from seed. In British gardens it grows most rapidly and vigorously when grafted on the species, or on *Q.* sessiliflòra.

♆ Q. *p.* 4 *péndula.* *Q.* péndula *Lodd. Cat.* 1836; the Weeping Oak. — Branches decidedly pendulous. The largest tree of this variety that

1543. Q. p. fastigiàta.

we know of, in England, stands in the park at Moccas Court, Herefordshire, and is, perhaps, one of the most extraordinary trees of the oak kind in existence. It generally comes true from seed. (See *Gard. Mag.* vol. xii. p. 368.)

1541. Q. p. heterophylla.

♃ Q. *p.* 5 *heterophýlla.* Q. salicifòlia *Hort.*, Q. laciniàta *Lod. Cat.*, Q. *f*ilicifòlia *Hort.*, Q. Fennéss*i* Hort. (Our *fig.* 1544.) — In this variety the leaves vary exceedingly in magnitude, in shape, and in being lanceolate and entire, cut at the edges, or deeply laciniated.

♃ Q. *p.* 6 *fòliis variegàtis* Lodd. Cat. — Leaves variegated with white, with some streaks of red. When finely grown, a very ornamental tree.

♃ Q. *p.* 7 *purpùrea.* Q. purpùrea *Lodd. Cat.* — Young shoots, and the footstalks of the leaves, tinged with purple. Young leaves, when they first come out, almost entirely purple, and very striking. A tree, which is among the oaks what the purple beech is among the beeches. There is a specimen 30 ft. high at Arno's Grove, Southgate.

*Other Varieties.* Q. p. Hodgínsii, Q. p. cinèrea, and Q. p. dúlcis are described in our first edition. The varieties of British oaks which might be selected from extensive woods of that tree are without end.

Quércus pedunculàta, both in Britain and on the Continent, is generally found on better soil than Q. sessiliflòra; and its wood splits more easily, and is lighter, than the wood of that species. In France, the chêne-à-grappes is always planted in preference to the chêne-rouvre, where the soil is sufficiently good. When both oaks are planted together in good soil, the red oak (Q. sessiliflòra) outgrows the white oak (Q. pedunculàta); and, when either oak grows on particular descriptions of soils, with bad subsoils, the wood assumes a brown or dark colour, and is found, when worked up, to be of comparatively short duration. Hence, a good deal of confusion has arisen as to the comparative value of the wood of these two species. For splitting, the white oak is to be preferred; and, with respect to durability, we believe that depends more on the soil, and on the rapidity or slowness of growth, than on the species. (See *Arb. Brit.*, 1st edit., p. 1731. to p. 1842.; and *Gard. Chron.*, vol. i. p. 70.)

### ♃ 2. Q. SESSILIFLO'RA *Sal.* The sessile-flowered Oak.

*Identification.* Sal. Prod., 392.; Smith Fl. Br., No. 2. *a*; Eng. Bot., t. 1845.
*Synonymes.* Q. Ròbur *Willd.*; Q. *R.* var. sèssile *Mart. Fl. Rust.* t. 11.; Q. sèssilis *Ehrh. Arb.* 87.; Q. platyphýllos, mas et fœm., *Dalech. Hist.* 2, 3.; Q. latifòlia mas, &c., *Bauh. Pin.*, *Raii Syn.* 440.; Q. regàlis *Burnet*; ? Q. austràlis *Cook*; Q. mannífera, the Manna Oak, *Lindl. Bot. Reg.* 1841; Q. mongólica *Ibid.* and *Gard. Chron.* vol. i. p. 35.; the Red Oak, Chestnut oak, Bay Oak; Chêne mâle, *Secondat*; Chêne roure or rouvre, Durelin, *Fr.*; Stein Eiche, gemeine Eiche, spät Eiche, Winter Eiche, dürr Eiche, roth Eiche, Berg Eiche, *Ger.*; Quercia vera, and Quercia commune, *Ital.*; Roble, *Span.*

1545 Q. sessiliflòra.

*Derivation.* The name of Chestnut Oak is given to this species, because its wood is supposed by some to resemble that of the sweet chestnut, as do the leaves in a slight degree, of some of the varieties. The French names imply the male oak, the red oak, and the hard oak. The German

names, the stone oak; the common oak, the late oak, in allusion to its lateness in leafing; the winter oak, from its frequently keeping on its leaves during winter; dry oak, probably from the leaves remaining on the tree after they have become dry and withered; red oak, from the colour of its wood; and hill oak, from its being more abundant on hilly ground than the *Q.* pedunculàta.

*Engravings.* Eng. Bot., t. 1845.; N. Du Ham., 7. t. 52.; Willd. Abbild., t. 130.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1545.

*Spec. Char., &c.* Leaves on longish footstalks, deciduous, oblong, smooth; sinuses opposite, rather acute; lobes obtuse. Fruit sessile. Nut oblong. (*Smith.*) Leaves, when young, pubescent beneath. (*Willd.*) A large deciduous tree, readily distinguished from the preceding species, even at a distance, by the less tufted appearance, and generally paler green, of its foliage during summer; and, in winter, by its less tortuous spray and branches, by its lighter-coloured bark, by its larger buds, and by its frequently retaining its leaves, after they have withered, till the following spring.

*Varieties.*

ϒ Q. *s.* 2 *pubéscens.* *Q.* s. var. β *Smith Eng. Fl.* vol. iv. p. 150.; *Q.* pubéscens *Willd. Sp. Pl.* iv. p. 450.; *Q. R.* lanuginòsum *Lam. Dict.* i. p. 717.; the Durmast, *Mart. Fl. Rust.* t. 12.—Leaves downy beneath. Fruit sessile, but sometimes subsessile.

ϒ *Q. s.* 3 *macrocárpa.* *Q. R*òbur macrocárpum *Booth.* (Our *fig.* 1546.)—Fruit large. Lodd.

1546. Q. s. macrocárpa.

1547. Q. s. falkenbergénsis.

ϒ *Q. s.* 4 *falkenbergénsis.* *Q.* falkenbergénsis *Booth, Forbes Hort. Tour* p. 5., and *Arb. Brit.* 1st edit. p. 1926. (Our *fig.* 1547.)—Leaves small and serrated. Fruit small. Plant stunted. Found on the hills of Falkenberg by Mr. Booth in 1832, and introduced in 1837.

ϒ *Q. s.* 5 *austràlis.* *Q.* ? austràlis *Link* in *Spreng. Syst. Quer.* No. 59., and *Arb. Brit.* 1st edit. p. 1925. (Our *fig.* 1548.)—Leaves large, regularly lobed, and evergreen or sub-evergreen. Introduced by Capt. S. E. Cook (now Widderington) in 1835, and possibly a distinct species, but we think not. Horticultural Society's Garden.

*Other Varieties* are mentioned by Bosc and some French authors, and in the *Gardener's Magazine*, vol. xii p. 571., and *Arb. Brit.*, 1st edit., p. 1737., fifteen are described as having been found by the Rev. W. T. Bree in Warwickshire, in the district called the Forest of Arden.

Quércus sessiliflòra is generally the only British oak found in poor soil; for example, on the high grounds on the south bank of the Thames between Greenwich and Gravesend. On the poor soils of the north and middle of France, it is the only oak which is indigenous. The oaks of the Bois de Boulogne are entirely of this species; as are those in the woods of Meudon, and throughout the whole of the extensive Forest of Fontainebleau. In Britain it is also frequently found in rich soil, with or without *Q.* pedunculàta; but the latter species is never found indigenous on soils so poor as those in which *Q.* sessiliflòra is found. (See our first edition.)

1548. Q. australis.

### ♃ 3. Q. PYRENAICA *Willd.* The Pyrenean Oak.

*Identification.* Willd.; N. Du Ham., 7. p. 179.; Rees's Cycl., No. 75.
*Synonymes.* *Q. Taúzin* Pers.; *Q.* nigra *Thore Chlor.*; *Q. Tòsa* Bosc; *Q.* stolonífera *Lapeyr.*, *Q.* tomentòsa *Dec.*; Chêne noir, *Secondat*; Chêne-tauzin, *Fr.*
*Engravings.* Secondat, Mém. du Chêne, t. 2. and t. 5.; N. Du Ham., 7. t. 56.; and our *fig.* 1549.

*Spec. Char., &c.* Leaves oblong, pinnatifid; stalked; downy beneath; somewhat heart-shaped and unequal at the base; lobes obtuse, slightly toothed. Fruit stalked. (*Willd.*) A low tree, technically deciduous, but retaining its withered leaves throughout the winter, and till they are pushed off by the expanding buds in the following summer. Pyrenees. Height 20 ft. to 30 ft. Introduced in 1822. Flowers greenish white; May and June.

1549. Q. pyrenàica.

Readily known, from its infancy upwards, from every other oak, in spring, by the dense covering of woolly down that is spread over its young leaves, which, on their first appearance (in the climate of London, three weeks later than those of the common oak), are of a reddish tinge. The leaves are retained during the winter, when they appear curled up, and at the extremities of the shoots remind one of the carved work in wood of the sculptor Gibbons. The roots run near the surface, and throw up numerous suckers. The wood, which weighs 60 lb. per cubic foot, is of great hardness, toughness, and durability, but apt to warp; the bark furnishes the best of all tan. It is one of the most ornamental of oaks, and being of small stature it ought to find a place in every collection, instead of which it is comparatively rare in England. Several varieties are mentioned in the New DuHamel.

### ♃ 4. Q. E'SCULUS *L.* The Esculus, *or Italian,* Oak.

*Identification.* Lin. Sp. Pl., 1414.; N. Du Ham., 7. p. 176.; Rees's Cycl., No. 70.
*Synonymes.* Phâgus *E'*sculus, mas et fœm., *Dalech. Hist.* 5.; Chêne grec, *Fr.*
*Derivation.* From *esca*, food. The Esculus of the classics is by some taken for the beech tree; but the *Q. Æ'*sculus of Linnæus is now believed to be the Phagos of Theophrastus, which he expressly says is a kind of oak.
*Engravings.* The plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1550.

1550. Q. *E'sculus.*

*Spec. Char., &c.* Leaves ovate-oblong, sinuated, smooth; paler beneath; segments bluntish, somewhat angular at the base. Fruit nearly sessile. Calyx scaly, hemispherical. (*Smith.*) A deciduous tree of the middle size. South of Europe. Height 20 ft. to 30 ft. Introduced in 1739. Flowers greenish white; May. Acorns brown; ripe in October.

A very handsome species, quite hardy, and deserving a place in every collection. There are large specimens of it in Whitton Park.

♆ 5. Q. (*E.*) APENNI'NA *Lam.* The Apennine Oak.

*Identification.* Lam. Dict. Encycl. 1. p. 725.; N. Du Ham., 7. p. 177.; Bosc Mém. sur les Chênes.
*Synonymes.* Q. conglomerâta *Pers.*; Chêne hivernal, *Fr.*
*Engravings.* N. Du Ham., 7. t. 53.; and our *fig.* 1551.

*Spec. Char., &c.* Leaves oval-oblong, petiolated, sinuated, pubescent beneath, bordered with obtuse lobes, somewhat angular. Acorns oval, disposed along a short peduncle. (*Lam.*) The leaves are exceedingly woolly beneath; the acorns small, almost globular, and sometimes borne to the number of 8 or 10 on one peduncle, not above 1 in. in length. The tree does not attain a large size, seldom exceeding the height of 20 ft. Not yet introduced; but apparently only a variety of Q. *E'sculus*; or perhaps even identical with it.

1551. Q. apennina.

## § ii. *Cérris. Mossy-cupped, or Turkey, Oaks.*

*Sect. Char.* Leaves lobed and sinuated, or dentated; more or less persistent; in some varieties, sub-evergreen or evergreen; always dying off of a dirty white or paper brown, never with any tinge of red or yellow. Buds furnished with linear stipules. Fructification generally biennial. Cups echinate, ramentaceous, or scaly, squarrose.

♆ 6. Q. CE'RRIS *L.* The *bitter, or mossy-cupped,* Oak.

*Identification.* Lin. Sp. Pl., 1415.; N. Du Ham., 7. p. 182.; Rees's Cycl., No. 83.
*Synonymes.* Q. crinita α and β, *Lam. Dict.* 1. p. 718.; Q. *Haliphlœ'os Juss.* in *Hort. Par.*; Q. burgundiaca, &c., *Bauh. Pin.* 420.; Q. Cérris Plinii, &c., *Lob. Icon.* 2. 156., *Dod. Pempt.* 831., *Ger. Emac.* 1345.; Cérrus *Dalech. Hist.* vol. 1. p. 6.; the Turkey Oak; the Iron, or Wainscot, Oak; Chêne Cerris, Chêne chevelu, Chêne de Bourgogne, *Fr.*; Burgundische Eiche, Cerr-eiche, *Ger.*; Cerro Ghiande amare, *Ital.*

*Derivation.* The specific appellation Haliphlœos was applied by Pliny to an oak with very bitter acorns: but it may be derived from *halis*, enough, and *phloios*, bark; in reference to the tendency to corkiness in the bark. The Iron Oak alludes to the weight of its wood, which is much heavier than that of the common oak. The term Wainscot Oak refers to its suitableness for lining the walls of rooms, from the Dutch words, *ward*, a wall; and *schorten*, to suspend.

*Engravings.* N. Du Ham., 7. t. 57.; the plates of this tree in Arb. Brit., 1st edit., vol. vii.; and our *figs.* 1552. and 1553.

*Spec. Char., &c.* Leaves on very short stalks, oblong, deeply and unequally pinnatifid; hairy beneath; lobes lanceolate, acute, somewhat angular. Stipules longer than the footstalks. Calyx of the fruit hemispherical, bristly. (*Smith.*) A large deciduous tree, attaining the same height as the British oak, but of much more rapid and vigorous growth. France, Italy, Spain, Austria, and the Levant. Introduced in 1735. Flowers greenish white; April. Acorns brown; ripe in October of the second year, and sometimes in the autumn of the first year.

1552. Q. Cérris.

1553. Q. Cérris.

*Varieties.* There is a great tendency in this species to sport; so that many varieties may be selected from every bed of seedlings. It also appears to hybridise with facility, especially with Q. *S*ùber; and from this cross the numerous race of varieties known as the Lucombe or Exeter oaks, the Fulham oaks, and the Ragnal oaks have been raised. There are also some varieties of Q. *C*érris which appear to owe their origin to geographical circumstances; such as Q. *C.* austrìaca, and Q. *C.* crinìta. The varieties cultivated in British nurseries may, for practical purposes, be arranged as deciduous, sub-evergreen, and evergreen.

* *Foliage deciduous.*

a. *Leaves pinnatifid or sinuated. Cups of the Acorns mossy.*

ϒ Q. C. 1 *vulgàris.* Q. *C.* frondòsa *Mill. Dict.* ed. 5. (see *fig.* 1552., and the plates of this tree in *Arb. Brit.*, 1st edit., vol. vii.) — Leaves pinnatifidly sinuated, and the cups covered with soft moss. Of this variety there is an endless number of subvarieties. *Fig.* 1552. may be considered as the normal form: *fig.* 1554. has the leaves more deeply sinuated: *fig.* 1553. is from a specimen of great

beauty, sent us by John Thomas Brook, Esq., of Flitwick House: and *fig.* 1555., copied from the figure given in Olivier's *Travels*, is the *Q.* crinìta var. ε *Lam. Dict.* i. p. 718.; *Q.* Tournefórtii Willd. No. 74.; *Q.* orientàlis latifòlia, &c., *Tourn. Cor.* 40., *Voy.* ii. p. 172.; *Q. Cérris Oliv. Voy.* i. p. 221., Eng. ed. ii. p. 5. and t. 12.; and *Q. Haliphlœ'os Bosc Mém. sur les Chênes. Fig.* 1556. shows portraits of three leaves, taken from a specimen of *Q. Cérris* vulgàris gathered in the arboretum at Milford in 1835, and there erroneously named *Q.* lusitánica. We have observed a similar diversity of appearance in the leaves of an old tree of *Q. Cérris* in the grounds at Buckingham Palace.

1554. *Q. C.* vulgàris.

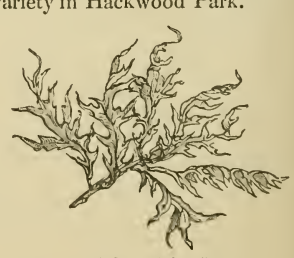
1555. *Q. C.* vulgàris.

1556. *Q. C.* vulgàris.

♆ Q. C. 2 *péndula* Neill in Lauder's Gilpin, vol. i. p. 73.—Branches pendulous. The handsomest tree of this variety in Britain is probably that at Hackwood Park, 40 ft. high, from a specimen of which *fig.* 1557. was taken. The branches not only droop to the ground, but, after touching it, they creep along the surface to some distance, like those of *Sophòra* japónica péndula, p. 196.

♆ Q. C. 3 *laciniàta.* (*fig.* 1558.)—There is a fine tree of this interesting variety in Hackwood Park.

1557. *Q. C.* péndula.



1558. *Q. C.* laciniàta.

♆ Q. C. 4 *variegàta* Lodd. Cat., ed. 1836. — Leaves variegated.

b. *Leaves dentate. Cups of the Acorns bristly.*

♆ Q. C. 5 *austrìaca.* *Q.* austrìaca *Willd.* No. 76.; *Q. Cérris Host Syn.* 520., α and β No. 28.; *Q.* crinìta γ *Cérris Lin., Lam. Dict.* i. p.

718.; *Q.* cályce híspido, &c., *Bauh. Pin.* 420. (The plate of this tree in *Arb. Brit.*, 1st edit., vol. vii.; and our *fig.* 1559.)—Leaves on longish stalks, ovate-oblong, slightly but copiously sinuated; downy and hoary beneath; lobes short, ovate, acute, entire. Stipules shorter than the footstalks. Calyx of the fruit hemispherical, bristly.

1559. *Q. C.* austriaca.

(*Smith.*) Sir J. E. Smith observes that this tree is "generally mistaken for *Q. Cérris*, from which nothing can be more certainly distinct;" we admit their distinctness, but no one who has seen the two trees together in the Horticultural Society's Garden can, we think, doubt their being only different forms of the same species. Austria, Hungary, Carniola, Italy, and other parts of the South of Europe, in stony mountainous places. Height and other particulars as in the species.

1560. *Q. C.* càna màjor.

♆ Q. C. 6 *càna màjor.* *Q.* càna màjor *Lodd. Cat.* ed. 1836 (*fig.* 1560.); the hoary-leaved bitter, or Turkey, Oak.—Resembles *Q.* austrìaca in the form of its leaves; but they are much more downy beneath.

♆ Q. C. 7 *càna mìnor.* *Q.* càna mìnor *Lodd. Cat.* ed. 1836.—Resembles the preceding kind, but has narrower leaves.

♆ Q. C. 8 *Rágnal.* *Q.* Rágnal *Lodd. Cat.* ed. 1836; the Ragnal Oak. — This variety has rather narrower and more deeply cut leaves than

*Q. C.* càna màjor ; but, in other respects, scarcely differs from that variety.

** *Foliage sub-evergreen. Leaves dentate. Acorns with bristly Cups.*

The leaves remain on the tree through a great part of the winter, retaining their vitality and greenness. In mild winters, the leaves do not begin to drop till March or April ; and, even in severe winters, a part of them, on the sheltered side of the tree, continue green till near the end of that month.

1561. *Q. C.* fulhaménsis.

ϒ Q. C. 9 *fulhaménsis. Q. C.* dentàta *Wats. Dend. Brit.* t. 93. ; *Q. C.* hýbrida var. dentàta *Swt.* ; the Fulham Oak. (See the plates of this tree in *Arb. Brit.*, 1st edit., vol. vii. ; and our *fig.* 1561.) — Leaves, alternate, ovate-elliptic, largely dentated ; the dents obtuse-angular

1562 *Q. C.* lucombeàna.

their sides excurved, and their vertices shortly mucronate. (*Wats.*) This is a fine broad-leaved sub-evergreen variety, of which there is a magnificent specimen in the Fulham Nursery.

♀ Q. C. 10 *f. latifòlia* Hort. — Leaves broader than those of the preceding variety.

♀ Q. C. 11 *Lucombeàna*. *Q.* Lucombe*àna* Swt.; *Q.* exoniénsis *Lodd. Cat.* ed. 1836; the Lucombe Oak, the everg een Turkey Oak, the Devonshire Oak, the Exeter Oak. (See the plate of this tree in *Arb. Brit.*, 1st edit.; and our *fig.* 1562.) — Raised by Lucombe, nurseryman at Exeter, from seeds of the species sown about 1762, and so closely resembling *Q. C.* fulhaménsis as scarcely to be worth keeping distinct.

*** *Foliage evergreen, or very nearly so. Leaves varying from dentate to sinuate. Cups of the Acorns bristly.*

This section consists entirely of subvarieties of the Lucombe Oak, which differ from the parent in being nearly evergreen.

♀ Q. C. 12 *L. críspa. Q.* Lucombe*àna* críspa *Hort.*; the new Lucombe Oak. (*fig.* 1563.) — Leaves somewhat curled at the edges, and the bark corky.

♀ Q. C. 13 *L. suberòsa. Q.* L. suberòsa *Hort.* — Leaves somewhat longer than in the preceding variety, and the bark double the thickness; that from a specimen sent us measuring 2 in. in thickness.

♀ Q. C. 14 *L. incìsa. Q.* L. incìsa *Hort.* — Leaves longer, and somewhat more deeply cut, than those of the preceding varieties.

♀ Q. C. 15 *L. dentàta. Q.* L. dentàta *Hort.*—A fine large-leaved evergreen variety, lately raised in the Exeter Nursery.

1563. *Q. C.* L. críspa.

♀ Q. C. 16 *heterophýlla. Q.* L. heterophýlla *Hort.* (*fig.* 1564.)—Foliage very variable; also a recent production of the Exeter Nursery.

The Turkey oak is a free-growing tree, with straight vigorous branches, which take a much more upright direction than those of the British or common oak; and both branches and twigs are, in every stage of the tree's growth, wholly free from the tortuous character of those of that species. The trunk is also straighter; but the branches, at their junction with it, being remarkable for an unusual degree of expansion, the trunks of middle-aged trees, as it is observed in the *Dictionnaire des Eaux et Forêts*, often appear gibbous. The bark is comparatively smooth and dark when young, but corky as it grows old; and it is reckoned less liable to chap and crack than that of the common oak. The leaves are of a beautiful bright shining green, somewhat glaucous or hoary beneath; and they vary so exceedingly in size and shape in different trees raised from seed, that almost every individual, if described from the leaves alone, might be constituted a distinct species: they have short footstalks, and are most readily distinguished from those of oaks of every other section by their small buds, and the numerous linear persistent stipules which proceed from them. The acorns are sessile, or on very short footstalks; and they are easily known by the bristly or mossy clothing of their cups. They are remarkably bitter and austere; a circumstance noticed by Pliny. The

wood and bark are by some considered as having the same properties as those of the British oak; but, as it is only about a century since the tree was introduced into this country, very few specimens have attained a sufficient size to be cut down for timber, and very little experience has been obtained on the subject. The tree is one of very great beauty, both in point of form and foliage; and, being of great rapidity of growth, it is equalled by few for ornamental plantations. The foliage of some varieties is persistent, like that of the beech and the hornbeam: and of others, supposed to be hybrids, it is sub-evergreen, or so near being completely evergreen, as to be retained on the trees till May. The species, and most of the varieties, ripen acorns in England, from which plants are raised with great facility; but the varieties, like those of every other oak, being very liable to sport, can only be continued by grafting or by layers. The stocks employed may be either those of *Q. Cérris*, or of the common British oak; and the grafting may be performed in the whip manner, with as great certainty of success as in grafting common fruit trees.

1564. *Q. C.* heterophýlla.

### ♆ 7. *Q. Æ'*GILOPS *L.* The Ægilops, *or Valonia*, Oak.

*Identification.* Lin. Sp. Pl., 1414.; N. Du Ham., 7. p. 175.
*Synonymes.* *Q.* orientàlis, &c., *Tourn. Cor.* 40.; *Æ'*gilops sive *Cérrus* mas *C. Bauhin, Secondat; Velàni* Tourn. Voy. 1. p. 128.; Gláns *Cérri Dalech. Hist.* 1. p. 7. the great prickly-cupped Oak; Chêne Velani, *Fr.*; Chêne Velanède *Bosc*; Knopper Eiche, *Ger.*; Vallonea, *Ital.*
*Engravings.* Mill. Ic., 2. t. 215.; Oliv. Travel., t. 13.; N. Du Ham., 7. t. 51.; the plates of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1565.

*Spec. Char., &c.* Leaves ovate-oblong, with bristle-pointed tooth-like lobes; hoary beneath. Calyx of the fruit very large, hemispherical, with lanceolate, elongated, spreading scales. (*Smith.*) A low deciduous tree. Islands of the Archipelago, and throughout all Greece. Height 20 ft. to 50 ft. Introduced in 1731. Flowers greenish white; May. Acorns large, brown, with numerous lanceolate scales, very ornamental; ripe in October.

*Varieties.*

♆ Q. Æ. 2 *péndula* Hort.—Branches drooping.

♆ Q. Æ. 3 *latifòlia* Hort.—Leaves rather broader than those of the species.

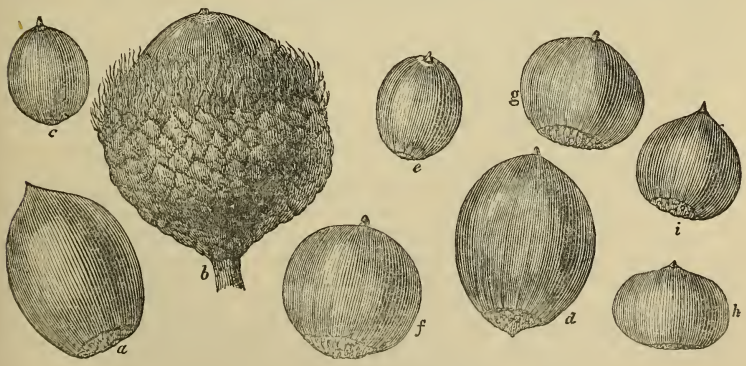
One of the most splendid species of the genus. In British nurseries it is not very common, but it is quite hardy, never injured by frost, and acorns may be imported in abundance from the South of France. The cups and acorns are annually exported from the Levant in large quantities, and are in great demand for tanning, being said to contain more tannin in a given bulk of substance than any other vegetable. A tree of this species at Syon,

1565. Q. Æ'gilops.

though under 30 ft. in height, bears acorns annually; which, however, do not always ripen.

B. *Natives of North America.*

The American oaks being generally propagated in Europe by acorns imported from America, we shall here give a comparative view of the acorns of some of the common kinds. *Fig.* 1566. represents acorns of the natural size,




1566. Acorns of the natural size.

of all the kinds that were imported by Mr. Charlwood of London, seedsman, in the year 1836; but, that year being unfavourable for the ripening of acorns in America, fewer sorts were imported than usual, and the nuts of these few are under the average size. In this figure, *a* is the acorn of Quércus álba; *b*, that of *Q.* macrocárpa, with the cup on; *c*, that of *Q.* obtusíloba; *d*, *Q.* Prìnus tomentòsa; *e*, *Q. P.* pùmila; *f*, *Q.* tinctòria; *g*, *Q.* nìgra; *h*, *Q.* Phéllos; and *i*, *Q.* palústris. Most sorts of the American oak in Messrs. Lod-

diges's collection (the most complete in Europe, unless we except that of M. Vilmorin,) are propagated by grafting on the common oak, close to the ground ; and largely earthing up the grafts afterwards, so as to leave only the points of the scions exposed to the air. This earthing up not only preserves a uniform degree of moisture round the graft ; but the earth employed being taken from the adjoining surface, and consequently having been heated by the sun, produces an immediate increase of temperature round the graft, which gives an impulse to the rising sap, and so accelerates vegetation. We had the advantage, in August, 1840, of examining all the American oaks in the Bois de Boulogne, in company with M. Michaux, who sowed the acorns in 1822 ; and we there observed, as we had previously done in the Hackney Arboretum, that much the most rapid, vigorous, and erect growing species was *Q.* palústris ; next *Q.* coccínea, which resembles *Q.* palústris, but with leaves on a larger scale ; then *Q.* rùbra ; and, next to that species, *Q.* nìgra and *Q.* tinctòria. *Q.* álba is not in the Bois de Boulogne, the acorns, as M. Michaux informed us, rarely retaining their vitality during the time requisite 20 years ago to bring them to Europe.

## § iii. *A'lbæ. White American Oaks.*

*Sect. Char.* Leaves lobed, and sinuated, not mucronated; broadest at the upper extremity ; dying off more or less shaded with a violet colour. Bark white, or whitish brown, cracking and scaling off in thin laminæ. Fructification annual. Cups imbricate or echinate. Nut oblong, generally large.

### ♀ 8. *Q.* A'LBA *Lin.* The *American* white Oak.

*Identification.* Lin. Sp. Pl., 1414. ; Pursh, vol. 2. p. 633. ; Michx. Quer., No. 4. t. 5.
*Synonymes.* *Q.* álba virginiàna *Park. Theat. Bot.* ; *Q.* a. pinnatífida *Walt. Carol.* p. 230. No. 10. ; *Q.* palústris *Marsh.* p. 120. No. 3. ; Chêne blanc de l'Amérique, *Fr.* ; weisse Eiche, *Ger.*
*Engravings.* Cat. Carol., 1. t. 21. f. 2. ; Michx. N. Amer. Syl., vol. 1. t. 1. ; the plate of this tree in Arb. Brit., 1st edit., vol. vii. ; and our *fig.* 1569.

*Spec. Char., &c.* Leaves oblong, pinnatifidly serrated ; pubescent underneath : lobes linear-lanceolate, obtuse, entire, attenuated at the base. Fruit pedunculated. Calyx somewhat cup-shaped, warty, and flattened at the base. Acorn oval. (*Willd.*) A large deciduous tree. North America. Height 60 ft. or upwards. Introduced in 1724. Flowers greenish white ; April.

*Varieties.* The elder Michaux gives the two following forms of this species, the leaves of both of which are shown in *fig.* 1567. copied from Michaux's *Histoire des Chênes Amériques* : —

♀ Q. *a.* 1 *pinnatífida* Michx. (Hist. des Chênes Amér., t. 5. f. 1. ; and our *fig.* 1567. *a.*) *Q.* álba *Ban. Cat. Stirp. Virg.* ; *Q.* virginiàna *Catesb. Carol.* i. p. 21. t. 21. ; *Q.* a. palústris *Marsh.* p. 120. No. 3. — The usual form of the species, and common from Canada to Florida. *Fig.* 1568. is a sprig and acorn of *Q.* álba pinnatífida, taken from Michaux's *North American Sylva*, vol. i. t. 1. ; and the acorn without its calyx is shown in *fig.* 1566. at *a.*

1567. *Q.* a. pinnatífida.

1568. *Q.* a. pinnatífida.

♀ Q. *a.* 2 *repánda* Michx. (Hist. des Chênes, t. 5. f. 2. ; and our *fig.* 1567. *b.* — Found wild in the forests of Carolina, and sometimes occurring in seed-beds of *Q.* álba in Europe. *Fig.* 1569. is from a sprig

1569. Q. a. repánda.

apparently of this variety, grown in the Horticultural Society's Garden, under the name of Q. álba. In Messrs. Loddiges's arboretum is an oak named Q. squamòsa, from a specimen of which *fig.* 1570. was taken. This tree, which is 20 ft. high, has exactly the

1570. Q. a. repánda.

appearance, bark, and habit of growth of Q. álba, and as it only differs from it in the shape of the leaves, it is doubtless only a variation of this variety.

The American white oak, according to Michaux, bears most resemblance to Q. pedunculàta. The leaves, he says, are regularly and obliquely divided into oblong rounded lobes, destitute of points or bristles; and the indentations are the deepest in the most humid soils. Soon after their unfolding, the leaves are reddish above, and white and downy beneath; when fully grown, they are smooth, and of a light green on the upper surface, and glaucous underneath. In the autumn they change to a bright violet colour. Michaux adds that this is the only American oak that retains some of its withered leaves till spring. The acorns are large, oval, and very sweet; and they are contained in rough, shallow, greyish cups. They are borne singly, or in pairs, on long peduncles, attached, as in all the species with annual fructification, to the shoots of the season. The bark of this species is white (whence the name) and scaly; and on young trees it appears divided into squares, but on old trees into plates laterally attached. The wood is reddish, somewhat resembling that of the British oak, but lighter, and less compact. The rate of growth of this

tree, in British gardens, even where the soil is good and the situation sheltered, may be considered as slower than that of the common oak; but when grafted on the common oak it grows freely, and ripens its shoots, so as soon to form a handsome tree.

### ☨ 9. *Q.* (A.) OLIVÆFO'RMIS *Michx.* The Olive-shape-*fruited American* Oak.

*Identification.* Michx. Arb., 2. p. 32.; N. Amer. Syl., 1. p. 32.; Pursh Fl. Amer. Sept. 2. p. 632.
*Synonyme.* The mossy-cup Oak, *Amer.*
*Engravings.* Michx. Arb., 2. t. 2.; N. Amer. Syl., 1. t. 3.; and our *fig.* 1571.

*Spec. Char., &c.* Leaves oblong, smooth; glaucous beneath; deeply and unequally pinnatifid. Fruit elliptic-ovate, on short footstalks. Calyx cup-shaped, fringed, and nearly covering the acorn. (*Michx.*) A deciduous tree on the Hudson, and in Genesee, but rare. Height 60 ft. to 70 ft.; and, according to Michaux, with a spreading head, and an imposing aspect. Introduced 1811.

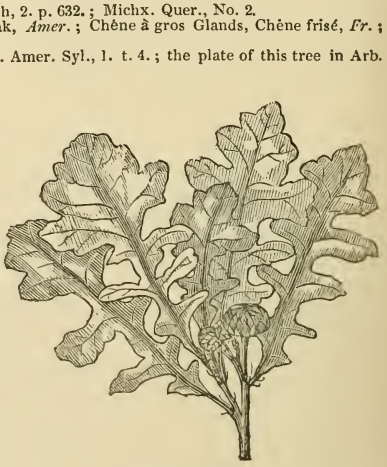
1571. *Q.* (a.) olivæ fórmis.

The bark is white and laminated; but the tree is chiefly remarkable for the form and disposition of its secondary branches, which are slender and flexible, and always inclined towards the earth. The leaves are of a light green above, and whitish beneath: they resemble those of the white oak in colour, but differ from them in form; being larger, and very deeply and irregularly laciniated, with rounded lobes, so different in shape, that it is impossible to find two leaves that are alike. In all probability only a variety of *Q.* álba.

### ☨ 10. *Q.* MACROCA'RPA *Willd.* The large-fruited *American* Oak.

*Identification.* Willd. Sp. Pl., 4. p. 433.; Pursh, 2. p. 632.; Michx. Quer., No. 2.
*Synonymes.* The over-cup white Oak, Bur Oak, *Amer.*; Chêne à gros Glands, Chêne frisé, *Fr.*; gross-fruchtige Eiche, *Ger.*
*Engravings.* Michx. Quer., No. 2. t. 2, 3.; N. Amer. Syl., 1. t. 4.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1572.

*Spec. Char., &c.* Leaves downy beneath, lyrate, deeply and sinuately lobed; the lobes obtuse and spreading, and the upper one much dilated. The calyx deep, cup-shaped, scaly, and fringed with bristles. Acorns thick and ovate. (*Willd.*) A beautiful deciduous tree, laden with dark tufted foliage. Kentucky and Tennessee. Height 60 ft. Introduced in 1800.



1572. *Q.* macrocárpa.

The leaves are larger than those of any other American oak, being frequently 15 in. long, and 8 in. broad: they are notched near the summit, and deeply laciniated below. The acorns (*fig.* 1566. *b*), which are also larger than those of any other American species, are oval; and enclosed for two thirds of their length in a thick rugged cup, which is generally bordered along

its upper edge with fine, long, flexible filaments. The bark of the young branches is frequently covered with a yellowish corky substance, like that which is found on the liquidambar and some kinds of elm.

♀ 11. *Q.* OBTUSI'LOBA *Michx.* The blunt-lobed-*leaved, or Post*, Oak.

*Identification.* Michx. Quer., No. 1. t. 1.; Pursh, 2. p. 632.; Michx. Arb. Am., 2. p. 36.
*Synonymes.* *Q.* stellàta *Willd. Sp. Pl.* 4. p. 452.; Iron Oak, Box white Oak, American Turkey Oak (so called, because the acorns, which are sweet, are eaten by the wild turkeys), upland white Oak, *Amer.*
*Engravings.* Michx. Quer., No. 1. t. 1.; N. Amer. Syl., 1. t. 9.; the plate of this tree in Arb. Brit., 1st. edit., vol. vii.; and our *fig.* 1573.

*Spec. Char., &c.* Leaves oblong, slightly pubescent beneath, sharply wedge-shaped at the base: lobes obtuse, the lower ones deeply sinuated, and the upper ones dilated, and slightly bilobed. Calyx hemispherical. Fruit oval, and rather small (*Michx.*) A deciduous tree. New Jersey and Philadelphia. Height 40 ft., with a trunk not more than 15 in. in diameter. Introduced in 1819.

1573. Q. obtusíloba.

The branches are bent into elbows at certain distances, which renders the tree easily distinguishable, even when the leaves have fallen. The bark is thin, and of a greyish white. The leaves are coriaceous, and of a dusky green above, and greyish beneath. In autumn, the ribs assume a rosy tint, but never that purplish red which is observable in those of the scarlet oak. The acorns (*fig.* 1566. *c*), which are produced in abundance, are small, oval, and three parts covered with a slightly rugged greyish cup.

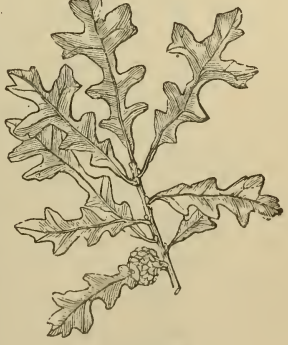
♀ 12. *Q.* LYRA'TA *Walt.* The lyrate, *or over-cup*, Oak.

*Identification.* Walt. Carol., 235.; Pursh, 2. p. 632.; Michx. Quer., No. 3. t. 4.
*Synonymes.* Swamp Post Oak, Water white Oak, *Amer.*
*Engravings.* Michx. Quer., No. 3. t. 4.; and our *figs.* 1574. and 1575.

*Spec. Char., &c.* Leaves subsessile, glabrous, lyrately sinuated; much contracted in the middle, but dilated at the summit, and attenuated at the base: lobes angular; the upper part of the leaf divided into three lobes, which are tricuspidate at their extremities. Calyx globula, rough, and almost covering the acorn. (*Michx.*) A large deciduous tree. Carolina and other southern states. Height 50 ft. to 80 ft. Introd. 1786.

The leaves are from 6 in. to 8 in. long, smooth, narrow, lyre-shaped, deeply sinuated, and borne on short petioles. The lobes, especially the upper ones, are somewhat truncated. The foliage is thick, and of a light agreeable tint; and the bark is white. The acorns are broad, round, and depressed; and the cups, which are nearly closed over

1574. Q. lyràta.


1575. Q. lyràta.

them, are thin and scaly, each scale being terminated by a short firm point or bristle. The largest American oak that thrives in wet ground. (*Michx.*)

## § iv. *Prìnus. Chestnut Oaks.*

*Sect. Char., &c.* Leaves dentate, dying off of a dirty white or of a yellowish orange. Bark white, rough, and scaly. Fructification annual. Cup imbricate. Nut oblong, generally large.

### ☥ 13. *Q. Pri`nus L.* The Prinus, *or Chestnut-leaved*, Oak.

*Identification.* Lin. Sp. Pl., 1413.; N. Du Ham, 7. p. 164.; Michx. Fl. Bor. Amer., 2. p. 195.

*Spec. Char., &c.* Leaves oblong-oval, more or less pointed, nearly equally toothed. Cup somewhat scaly; nut ovate. (*Michx.*) Trees deciduous, varying in height from 20 ft. to 90 ft.; and one of the varieties a low shrub. In the climate of London the trees grow freely, and promise to attain a considerable size. In general form, they are as handsome as any of the American oaks; but their foliage dies off with very little colour, what there is being generally of a dirty white or brownish.

*Varieties.* These are by some authors treated as species; but they are so obviously alike in their leaves and bark from their infancy upwards, that there does not remain a single doubt in our minds of their being only varieties.

☥ Q. P. 1 *palústris* Michx. Quer. No. 5. t. 6. *Q. P.* palústris *Michx. N. Amer. Syl.* i. p. 46. t. 8. (the plate of this tree in *Arb. Brit.*, 1st edit., vol. viii.; and our *fig.* 1576.); *Q. P*rìnus *L. Sp. Pl.* 1413.; *Q. c*astaneæfòliis, &c., *Pluk. Alm.* 309.; the Swamp Chestnut Oak; the Chestnut white Oak: and, near Philadelphia, the white Oak. — Leaves on longish footstalks, obovate. Fruit very large. Cup moderately hollow, distinctly scaly (*A. Michx.*) A large deciduous tree. Maritime parts of Carolina and other southern states. Height 80 ft. to 90 ft. Introd. 1730. The leaves of *Q. P.* palústris are of a shining green above, and whitish and somewhat wrinkled underneath; they have rather long footstalks; and are from 8 in. to 9 in. long, and from 4 in. to 5 in. broad; obovate, and terminating in an acute point. They are somewhat wedge-shaped, and are deeply dentated with blunt lobe-like teeth from the summit to the base. The acorns are of a bright clear brown, oval, and larger than those of any other kind of American oak, except *Q.* macrocárpa: they are borne on very short peduncles, and are contained in shallow scaly cups.

1576. *Q. P.* palustris.

☥ Q. P. 2 *montícola* Michx. Quer. No. 5. t. 7. (our *fig.* 1577.) *Q. P.* montícola *Michx. fil. N. Amer. Syl.* i. p. 49. t. 9.; *Q.* montàna *Willd. Sp. Pl.* iv. p. 440.; *Q. P*rìnus *Smith* in *Abb. Ins. of Geor.* ii. p. 163. t. 82.; the Rock Chestnut Oak. — Leaves on short footstalks, rhomboid-oval. Fruit rather large; cup top-shaped and rough; nut oblong. (*Michx.*) A large deciduous tree. Pennsylvania to Virginia. Height 50 ft. to 60 ft. Introd. 1800. The beautiful appearance of this tree, according to the younger Michaux, when

growing in a fertile soil, is owing equally to the symmetry of its form and the luxuriance of its foliage. The bark on old trees is hard, thick, and deeply furrowed; and the outer bark is equally good for tanning as the inner bark. The leaves are 5 or 6 inches long, and 3 or 4 inches broad; oval; and uniformly dentate, with the teeth more regular, but less acute, than those of *Q. P.* palústris; the leaf terminating in a point. When beginning to unfold in spring, the leaves are covered with a thick white down, and they appear somewhat wrinkled; but, when fully expanded, they are perfectly glabrous, smooth, and of a delicate texture. The petiole, which is rather short, is yellow, and the colour becomes brighter and more conspicuous in autumn. The acorns are long, of an oblong-oval shape: they are produced in pairs, on a short peduncle, and are enveloped for about one third of their length in pear-shaped cups, covered with loose scales.

1577. *Q. P.* monticola.

ϒ Q. P. 3 *acuminàta* Michx. Quer. No. 5. t. 8. (our *fig.* 1578.) *Q. P.* acuminàta *Michx. fil. N. Amer. Syl.* i. p. 51. t. 10.; *Q. C*astànea *Willd. Sp. Pl.* iv. p. 441.; the yellow Oak. — Leaves on long footstalks; obtuse at the base, sharply serrated. Fruit of moderate size; cup hemispherical. (*Michx.*) A fastigiate deciduous tree. Delaware to the Savannah. Height 70 ft. to 80 ft. Introduced in 1822. The bark is whitish, very slightly furrowed, and sometimes divided into plates. The leaves are lanceolate, obtuse at the base, and ending in a sharp point, regularly toothed, of a light green above, and whitish beneath. The acorns are small, roundish-ovate, and contained in shallow slightly scaly cups.

1578. *Q. P.* acuminàta.

ϒ Q. P. 4 *pùmila* Michx. Quer. No. 5. t. 9. f. 1. *Q. P. Chínquapin* Michx. N. Amer. Syl. i. p. 55. t. 11. (our *fig.* 1579.); *Q. Chínquapin* Pursh Fl. Amer. Sept. ii. p. 634.; *Q. prinoìdes Willd. Sp. Pl.* iv. p. 440.; the Chinquapin, or Dwarf Chestnut, Oak. — Leaves on shortish petioles; somewhat lanceolate; glaucous beneath. (*Michx.*) A low deciduous tree. Northern and middle states. Height 20 ft. to 30 ft. Introd. 1828. The leaves are oval-acuminate, regularly, but not deeply, dentated, of a light green above, and whitish beneath. The acorns (*fig.* 1566. *e*) are enclosed, for about one third of their length, in scaly sessile cups they are of the middle size,

1579. *Q. P.* pùmila.

somewhat elongated, similarly rounded at both ends, and very sweet. Highly ornamental when in full bloom, and most prolific in acorns even when only 3 or 4 feet high.

♃ Q. P. 5 *tomentòsa* Michx. Quer. No. 5. t. 9 f. 2. Q. *P.* díscolor *Michx. N. Amer. Syl.* i. p. 43. t. 7. (our *fig.* 1580.); Q. bícolor *Willd. Sp. Pl.* iv. p. 440.; Q. Michaúxi Nutt.; the Swamp white Oak. — Leaves almost sessile, obtusely oval, bluntly toothed; downy beneath. (*Michx.*) A large deciduous tree. United States generally. Height 60 ft. to 70 ft. Introduced in 1800. The leaves are from 6 in. to 8 in. long, and 4 in. broad; entire towards the base, which is attenuated and wedge-shaped; but dilated and coarsely toothed for two thirds of their length. The tree is distinguished, when full grown, by the remarkable appearance of its leaves; which are on the under side silky and of a silvery whiteness, while the upper side is smooth and of a bright green. The acorns (*fig.* 1566. *d*) are long, of a clear chestnut brown, and contained in rather shallow scaly cups, edged with short slender filaments. These cups are more downy within than those of any other oak; and they are borne in pairs, on peduncles of from 1 in. to 2 in. in length. The bark is scaly, as in all the preceding varieties, and of a greenish white.

1580. *Q. P.* tomentòsa.

## § v. *Rùbræ. Red American Oaks.*

*Sect. Char.* Leaves deeply lobed, sinuated, multifid, and mucronated. Bark dark, and not scaling off. Fructification biennial. Nut ovate, with a persistent style. Cup imbricate, large in proportion to the nut. — Trees, varying from 80 or 90 feet to 15 or 20 feet in height; remarkable for the bright red, deep scarlet, or dark purple, of their foliage, when it dies off in autumn. Perhaps most of the kinds in this section might be reduced to two or three species; but, as they come up tolerably true from seed, we have, for the cultivator, considered it more convenient to treat them as distinct. The hardiest and most rapid-growing, and at the same time the most elegant and ornamental, tree of the section is Q. palústris, which, with its spreading drooping branches, and its straight erect trunk and spiry top, is, independently of its lively scarlet, orange, and red colours in spring and autumn, in our opinion the most graceful of all oaks, either European or American.

### ♃ 14. *Q.* RU`BRA *L.* The red, *or Champion*, Oak.

*Identification.* Lin. Sp. Pl., 1413.; Pursh Fl. Amer. Sept., 2. p. 630.; Michx. Quer., No. 20.
*Synonyme.* *Q. Æsculi* divisurâ, &c., *Pluk. Phyt.* t. 54. f. 4.
*Engravings.* Pluk. Phyt., t. 54. f. 4.; Michx. N. Amer. Syl., 2. t. 28.; the plates of this species in Arb. Brit., 1st edit., vol. viii.; and our *figs.* 1581. and 1582.

*Spec. Char., &c.* Leaves smooth, oblong, sinuated, on long stalks: lobes acute, sharply toothed, bristle-pointed. Calyx of the fruit flat underneath. Nut ovate. (*Willd.*) A large deciduous tree. Canada and the whole of the North of the United States. Height 80 ft. to 90 ft. Introduced in 1739. Flowers greenish white; May. Acorns brown, occasionally ripened in England in October.

*Varieties.* Aiton, in the *Hortus Kewensis*, 2d ed., mentions two forms of this species: Q. rùbra latifòlia, the champion oak, which is the Q. rùbra of Linnæus; and Q. rùbra montàna, the mountain red oak.

1581. Q. rùbra.

1582 Q. rùbra

The bark is comparatively smooth, of a dark colour, very thick; and, though in old trees it cracks, yet it never scales off as in the sections A'lbæ and Prìnus. The wood is reddish and coarse-grained; and its pores are often so large as to admit the entrance of a hair. The leaves, when they first come out in spring, are of a fine sulphur colour; when fully expanded, they are smooth and shining on both sides, large, deeply laciniated, and sometimes slightly rounded at the base, especially on old trees; and, before they fall, they turn of a deep purplish red. According to the younger Michaux, the leaves on old trees often nearly resemble those of Q. falcàta. The leaves of Q. falcàta are, however, always downy beneath; while those of Q. rùbra are smooth. The leaves of Q. rùbra die off of a more purplish red than those of most of the other kinds in this section; but they often become yellow before they fall. They vary much in shape, from the age of the plant, or the soil and situation in which it has grown. *Fig.* 1581., copied from the elder Michaux's *Histoire des Chênes*, shows the leaves of a seedling a year old; *fig.* 1582., from the same work, those of a tree bearing acorns.

### ☥ 15. Q. COCCI'NEA *Willd.* The scarlet Oak.

*Identification.* Willd. Sp. Pl., 4. 446.; Michx. Fl. Bor. Amer., 2. p. 199.; Pursh Fl. Amer. Sept., 2. p. 630.
*Synonyme.* Q. rùbra β *Ait.* ed. 1. 3. p. 357.
*Engravings.* Wang. Forst., t. 9.; Michx. Quer., t. 31, 32.; N. Amer. Syl., 1. t. 25.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our *figs.* 1583. and 1584.

*Spec. Char., &c.* Leaves smooth, oblong, deeply and widely sinuated, on long stalks: lobes divaricated, acute, sharply toothed, bristle-pointed. Calyx of the fruit turbinate, half as long as the nut. (*Willd.*) A large deciduous tree. Pennsylvania to Georgia. Height 80 ft. Introduced in 1691.

The leaves, which are chiefly distinguished from those of Q. rùbra by having longer petioles, are of a beautiful green, shining on both sides; and, on old trees, laciniated in a very remarkable manner, having usually four deep sinuses on each side, very broad at bottom. The leaves begin to change with the first cold; and, after several successive frosts, turn to a brilliant scarlet, instead of the dull red of those of Q. rùbra. These leaves differ very greatly in shape at different stages in the growth of the tree. When quite young, they are scarcely lobed at all, as may be seen by *fig.* 1583., which is taken from Michaux's *Histoire des Chênes*, and represents a seedling a year old; and *fig.* 1584., a sprig and acorn from an old tree, copied from Michaux. Amidst all the varieties, however, in the shape of the leaf of the scarlet oak, it may always be distinguished from that of Q. rùbra by the different hue which it assumes in autumn; the colour of Q. coccínea being always a bright scarlet, or yellowish red, of more or less intensity; and that of Q. rùbra a dull

1583. Q. coccínea.

1584. Q. coccinea.

crimson, or purplish red. The leaf also bears a greater resemblance to that of *Q.* palústris than any other species.

### ⚹ 16. Q. AMBI'GUA *Willd.* The ambiguous, *or grey.* Oak.

*Identification.* Michx. North Amer. Syl., 1. p. 98.; Pursh Sept., 2. p. 630., not Humboldt.
*Synonyme.* *Q.* boreàlis *Michx. N. Amer. Syl.* 1. p. 98.
*Engravings.* Michx. Arb., t. 24.; N. Amer. Syl., 1. t. 26.; the plate of this tree in Arb. Brit., 1st edit., vol viii.; and our *fig.* 1585.

*Spec. Char., &c.* Leaves sinuated, glabrous, acute at the base; sinuses somewhat acute. Cup somewhat shield-shaped. Nut roundish-ovate. (*Michx.*) A large deciduous tree. Nova Scotia to Lake Champlain. Height 40 ft. to 60 ft. Introduced in 1800.

This species bears a close analogy to the red oak in its foliage, and to the scarlet oak in its fruit. It has also another peculiarity in blossoming every year, though it takes two, three, and in very cold climates four, years to mature its fruit. The leaves are large, smooth, and deeply sinuated; the indentations being sharper and more angular than those of the leaves of *Q.* coccínea. The acorns are of the middle size, rounded at the end, and contained in scaly top-shaped cups. The grey oak is found farther north than any other American species, and it therefore would seem to be the best adapted for being cultivated in Britain as a useful tree. The wood is as coarse and open in its pores as that of the red oak; but it is stronger and more durable.

1585. Q. ambígua.

### ⚹ 17. Q. FALCA'TA *Michx.* The Sickle-shaped, *or Spanish,* Oak.

*Identification.* Michx. Quer., No. 16.; Pursh Fl. Amer. Sept., 2. p. 631.
*Synonymes.* *Q.* díscolor *Ait. Hort. Kew.* ed. 1. 3. p. 358.; *Q.* elongàta *Willd. Sp. Pl.* 4. p. 444.: *Q.* lyràta *Lodd. Cat.* 1836; *Q.* cuneàta *Wang.*; *Q.* tríloba *Willd., Michx. Quer.* 14. No. 26.; *Q.* cuneàta *Wang., Forst.*; the downy-leaved Oak.
*Engravings.* Michx. Quer., t. 28.; N. Amer. Syl., 1. t. 23.; and our *figs.* 1586. and 1587.

*Spec. Char., &c.* Leaves downy beneath, sinuated with three or more somewhat falcate bristle-pointed lobes; the terminal one elongated and jagged. Calyx hemispherical. (*Willd.*) A large deciduous tree. Canada to Georgia. Height 30 ft. to 80 ft. Introduced in 1763.

This oak is a very remarkable one, from the great difference which exists in

its leaves and general appearance in different climates. This difference is so extraordinary, that nearly all the botanists who have written on the American oaks have supposed it to be two species. In the Southern States, it forms a noble tree, 80 ft. high, with a trunk 4 or 5 feet in diameter; while in New Jersey the tree is never above 30 ft. high, with a trunk only 4 or 5 inches thick. The bark is thick, black, and deeply furrowed; and the wood is reddish and coarse-grained, with open pores, like that of the red oak. The leaves are also extremely different; on the trees in the south, they are falcate, like those in *fig.* 1586., copied from the plate of this tree in the *North American Sylva*, i. t. 23.; in

1586. Q. falcàta.

1587. Q. falcàta.

New Jersey, the leaves are three-lobed (like those shown in *fig.* 1587. *b*, from the *Histoire des Chênes*), except a few on the summit, which are slightly falcated. Generally the lower branches of all trees of this species, growing in moist and shaded situations, have their leaves trilobed; while those on the upper branches are falcated, with their lobes even more arched than those in *fig.* 1586. This remarkable difference led the elder Michaux to describe the specimens which he had found growing in very cold bad land as Q. tríloba; and on the young shoots of these specimens he frequently found leaves deeply denticulated or lobed, like those of Q. rùbra or Q. coccínea, as represented at *a* in *fig.* 1587. The acorns are small, round, brown, and contained in slightly scaly, shallow, top-shaped cups, supported on short peduncles: they resemble those of Q. Banísteri, and, like them, preserve the power of germination for a long time.

### ☥ 18. Q. TINCTO'RIA *Willd.* The *Quercitron*, *or* Dyer's, Oak.

*Identification.* Willd. Sp. Pl., 4. p. 444.; Pursh Fl. Amer. Sept., 2. p. 629.
*Synonymes.* Q. virginiàna, &c., *Pluk. Phyt.* t. 54. f. 5.; Q. díscolor *Willd. Arb.* 274.; the black Oak, *Amer.*; Chêne des Teinturiers, *Fr.*
*Engravings.* Michx. Quer., t. 24.; the plate of this tree in Arb. Brit., 1st edit., vol. vii.; and our *fig.* 1588.

*Spec. Char., &c.* Leaves downy beneath, obovate-oblong, dilated, widely sinuated: lobe short, obtuse, slightly toothed, bristle-pointed. Calyx of the fruit flat underneath. Nut globose. (*Willd.*) A large deciduous tree. United States generally. Height 80 ft. to 100 ft. Introduced in 1800.

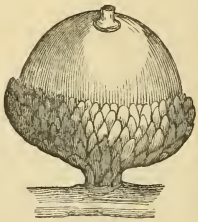
*Varieties.* Michaux, in his *Chênes de l'Amérique*, gives the two following forms of this species: —

☥ Q. *t.* 1 *angulòsa* Michx. Q. americàna *Pluk. Alm.* p. 309.; Q. velutìna *Lam. Dict.*; Q. tinctòria *Bart. Trav.* p. 37.; the Champlain Oak. — Leaves smooth, lobed with angular lobes. Cup top-shaped. Nut globose, and depressed at the summit. Shores of Lake

Champlain, in Pennsylvania, and high mountains in Carolina and Georgia.

ϒ *Q. t.* 2 *sinuòsa* Michx. Quer. t. 25.—Leaves deeply sinuated. Cup flat and turbinated. Nut ovate. Native of South Carolina and Georgia.

The trunk is straight, and is covered with a deeply furrowed bark of middling thickness, but always black, or of a very deep brown colour; whence probably the tree derives its common name in America, viz. the black oak. The dark hue of the bark easily distinguishes this tree from *Q.* rùbra, *Q.* coccínea, and *Q.* ambígua, in the northern provinces; but, in the southern ones,



1588. *Q* tinctoria

*Q.* falcàta having bark of the same colour, *Q.* tinctòria can only be distinguished by its buds, which are longer, more acuminate, and more scaly, than those of the former species. The inner bark of *Q.* tinctòria, if chewed, is very bitter, and gives a yellow tinge to the saliva, which is not the case with the bark of *Q.* falcàta. The wood is reddish, coarse-grained, and porous, like that of all the red oaks. The leaves are large, deeply laciniated, and resemble those of *Q* coccínea, but they have fewer lobes, never exceeding four or five; while the leaves of the old trees of *Q.* coccínea have from five to seven: they are also less openly and roundly sinuated, less shining, and of a duller green; and, during a part of the summer, have their surfaces roughened with small glands, which are visible to the eye and sensible to the touch, and which are also found on the young shoots. In autumn, the leaves of young trees turn to a dull red; but those on old trees become yellow, or of a yellowish brown, beginning with the petiole. The wood is used as a substitute for the white oak, and the bark for tanning, and for dyeing leather a brilliant yellow.

ϒ 19. *Q.* PALU'STRIS *Willd.* The Marsh, *or Pin*, Oak.

*Identification.* Willd. Sp. Pl., 4. p. 446; Michx. Quer., No. 19.; Pursh Fl. Amer. Sept., 2. p. 631.
*Synonymes.* *Q.* montàna *Lodd. Cat.* ed. 1836; *Q.* Banísteri Lodd. Cat. ed. 1836.
*Engravings.* Michx. Quer., t. 33, 34.; N. Amer. Syl., 1. t. 27.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1589.

*Spec. Char., &c.* Leaves smooth, oblong, deeply and widely sinuated, on long stalks; lobes distant, parallel, acute, sharply toothed, bristle-pointed; forks of the veins densely woolly beneath. Calyx of the fruit flattened. Nut nearly globose. (*Willd.*) A large deciduous tree. Northern States of North America. Height 80 ft. Introduced in 1800.

1589. *Q* palústris

The tree, when young, assumes an agreeable pyramidal shape; and its far-extending drooping branches, and light and elegant foliage, render it, in our opinion, the most graceful of all oaks. The bark on the oldest trees of *Q.* palústris is scarcely ever cracked: on young trees it is perfectly smooth.

1590. Q. palustris.

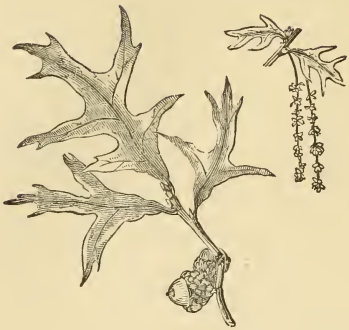
The wood is coarse-grained, and resembles that of the red oak. In the climate of London, the tree is remarkably hardy, and its rate of growth is much more rapid than that of every other American oak, unless we except Q. ambígua, which is very rarely to be met with. This may be rendered obvious at a glance, by inspecting the line of oaks at Messrs. Loddiges's, where there are three trees, marked Q. palústris, Q. Banísteri, and Q. montàna, (all of which are the Q. palústris of Michaux,) which are above 30 ft. high, which is several feet higher than any of the others, with the single exception of Q. ambígua. The same result as already mentioned (p. 862.) is observable in the Bois de Boulogne. The leaves are much smaller than those of the other species of this section: they are smooth, of a pleasing green, supported on very long petioles, and, on old trees, are very deeply laciniated. On young trees, they are much less so, as will be seen by *fig.* 1589., copied from Michaux's *Histoire des Chênes*, in which *a* is a seedling of one year old, and *b* a leaf from a tree two years old. The acorns (*fig.* 1566. *i*) are small, round, and contained in flat shallow cups.

⁂ 20. Q. CATESBÆ'I Willd. The *Barren Scrub, or* Catesby's, Oak.

*Identification.* Willd. Sp. Pl., 4. p. 446.; Michx. Quer., No. 17.; Pursh Fl. Amer. Sept., 2. p. 630.
*Synonymes.* Q. rùbra β *Abb. and Smith Ins.* 1. p. 27.; Q. E'sculi divisùra, &c., *Cat. Car.* 1. t. 23.
*Engravings.* Michx. Quer., t. 29, 30.; and our *figs.* 1591. and 1592.

*Spec. Char., &c.* Leaves smooth, oblong, wedge-shaped at the base, deeply and widely sinuated, on short stalks: lobes 3 or 5, divaricated, acute, 2- or 3-cleft, bristle-pointed. Calyx of the fruit turbinate, half as long as the nut. (*Willd.*) A deciduous shrub or low tree. Carolina and Georgia. Height 15 ft. to 30 ft. Introduced in 1823.

The general appearance of this tree is stunted: its trunk is crooked, dividing into branches at 2 or 3 feet from the ground, and covered with a thick, blackish, deeply furrowed bark The foliage is open, and its leaves are large, smooth, thick, and coriaceous towards the close of summer, deeply and irregularly laciniated, and supported on short petioles. With the first frost, they change to a dull red, and fall the ensuing month. The acorns are



1591. Q. Catesbæi.

1592. Q. Catesbæi.

pretty large, of a blackish colour, and partly covered with a fine grey dust, which is easily rubbed off between the fingers: they are contained in thick cups, swollen towards the edge, with the upper scales bent inwards. The leaves vary very little, as will be seen by *fig.* 1592., in which *a* represents a seedling of one year's growth, and *b* a leaf from a plant two years old.

## § vi. *Nigræ. Black American Oaks.*

*Sect. Char., &c.* Leaves wedge-shaped, or imperfectly lobed; mucronated, but the mucros generally dropping off when the leaves have attained their full size. Leaves dying off of a blackish green, and in America frequently persistent. Bark black, and not scaling off. Fructification biennial. Nut ovate, with a persistent style, and sometimes marked with dark lines.—Trees from 20 ft. to 40 ft. high; and one of them, a miniature tree, often not exceeding 3 ft. in height. Rate of growth less rapid than in the preceding sections.

### ♆ 21. *Q.* NI'GRA *L.* The Black *Jack* Oak.

*Identification.* Lin. Sp. Pl., 1413.; Michx. Quer., No. 12.; Pursh Fl. Amer. Sept., 2. p. 629.
*Synonymes.* *Q.* maryländica, &c., *Raii*; *Q.* ferruginea *Michx. N. Amer. Syl.* 1. p. 79. t. 20.; *Q.* aquática *Lodd. Cat.* ed. 1836; Barrens Oak, *Amer.*
*Engravings.* Michx. Quer., t. 22, 23.; and our *fig.* 1593.

*Spec. Char., &c.* Leaves wedge-shaped, somewhat heart-shaped at the base; dilated, abrupt, and very slightly 3-lobed at the end: the middle lobe shortest, smooth above, rusty beneath. Calyx hemispherical, with membranous scales. Nut roundish ovate. (*Willd.*) A low deciduous tree. New Jersey, Maryland, and Virginia. Height 20 ft. to 30 ft. Introduced before 1739.

1593. Q. nigra.

The Black Jack Oak, according to Michaux, is sometimes 30 ft. high, and 8 or 10 in. in diameter, but commonly does not exceed half these dimensions. Its trunk is generally crooked; and it is covered with a very hard, thick, and deeply furrowed bark, which is black on the outside, though the inner bark is of a dull red. The head of the tree is broad and spreading, even in the

midst of the woods. The leaves are of a very remarkable shape, being dilated towards the summit, like a pear, and armed, when young, with 3 or 5 bristle-like points, which fall off when the leaf has attained its full size. *Fig.* 1594., from Michaux's *Histoire des Chênes*, shows these mucros on seedlings of one year's and two years' growth. The leaves are yellowish, and somewhat downy at their first unfolding in spring; but, when fully expanded, they become of a dark green above, and rusty beneath: they are also thick and leathery in their texture. In autumn, they turn of a blackish red, and fall with the first frost. The acorns (*fig.* 1566, *g*) are large, and half-covered with very scaly cups. The specific name of nìgra was given to this oak, by Linnæus, on account of the blackness of its bark, and its general dark appearance.

1594. Q. nìgra.

### ♃ 22. Q. AQUA'TICA *Soland.* The Water Oak.

*Identification.* Soland. in Ait. Hort. Kew., ed 1., 3. p. 357.; Michx. Quer., No. 11.; Pursh Fl. Amer. Sept., 2. p. 628.
*Synonymes.* *Q.* foliis cuneiformibus, &c., *Gron. Virg.*; *Q.* fòlio non serràto, &c., *Cat. Carol.* l. t. 20.; *Q.* nìgra *Willd. Sp. Pl.*, 1413.; *Q.* uliginòsa *Wangh. Amer.* t. 6. f. 18.
*Engravings.* Michx. Quer., t. 19, 20, and 21.; and our *fig.* 1595.

*Spec. Char., &c.* Leaves wedge-shaped, smooth; tapering at the base; dilated and obscurely 3-lobed at the end; the middle lobe largest. Calyx nearly hemispherical. Nut roundish. (*Willd.*) A middle-sized deciduous tree. Virginia, Carolina, and Florida. Height 40 ft. to 60 ft. Introd. before 1723.

*Varieties.*

♃ Q. *a.* 2 *nàna.* *Q* aquática *Smith and Abb. Ins.* ii. p. 117. t. 59.; *Q.* a. elongàta *Ait. Hort. Kew.* v. p. 290.; *Q.* dentàta *Bart. Trav.* p. 14. and 28.; *Q.* nàna *Willd. Sp. Pl.* iv. p. 443.; the Dwarf jagged Oak. — Of much lower stature than the species; and the leaves nearly sessile, and more distinctly lobed.

♃ Q. *a.* 3 *marítima* Michx. Quer. No. 11. t. 20. f. 2. *Q.* hemisphæ'rica *Willd. Sp. Pl.* iv. p. 443. — Leaves persistent.

1595. Q. aquática.

1596. Q. aquática.

*Other Varieties.* There is no American oak, not even *Q.* falcàta, of which the foliage is so variable as of this tree. On full-grown trees, the leaves

are smooth, shining, and heart-shaped, or broad and rounded at the summit, and terminating in a point at the base, as in *fig.* 1595.; and on young trees, or on shoots from the roots of old trees, the leaves are oval, toothed, oblong, and, in short, of all the different forms shown in *fig.* 1595., taken from the *Histoire des Chênes.* In the *Hortus Kewensis*, five varieties are enumerated, only differing in the shape of the leaves; but the elder Michaux asserts that they cannot be propagated with certainty even by grafting; and that all the different kinds may be found on one tree. Even the two we have given under distinct names, though they are made species by some authors, are rather variations than varieties.

The bark, on the oldest trees, is smooth, or very slightly furrowed. The acorns, which are of a dark brown, and are small and extremely bitter, are contained in shallow slightly scaly cups. The wood is tough; but it decays so soon, that it is never used in America, even for fuel.

### ♣ ♆ 23. *Q.* (A.) *I*LICIFO'LIA *Wang.* The Holly-leaved, *or Bear*, Oak.

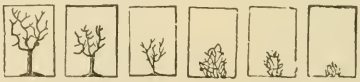
*Identification.* Wang. Amer., 79. t. 6. f. 17.; Ait. Hort. Kew., ed. 2., 5. p. 292.
*Synonymes.* *Q.* Banísteri Michx. Quer. No. 15.; ? *Q.* aquática *Abbott and Smith Ins.* 2. p. 157.; Black Scrub Oak, Dwarf red Oak, *Amer.*
*Engravings.* Wang. Amer., t. 6. f. 17.; N. Amer. Syl., 1. p. 21.; and our *fig.* 1597.

1597 Q. (a.) ilicifolia.

*Spec. Char., &c.* Leaves obovate-wedge-shaped, with 3 or 5 deep bristle-pointed lobes, entire, downy beneath. Fruit stalked, in pairs. (*Willd.*) A deciduous shrub or low tree. Northern States of North America. Height 3 ft. to 10 ft. Introduced in 1800.

This very remarkable little tree is generally found about 3 or 4 feet high; but, in favourable situations, it is sometimes found to reach the height of 8 or 10 feet. The trunk is covered, like the branches, with a polished bark. The leaves are of a dark green on the upper surface, whitish beneath, and regularly divided into 3 or 5 lobes. The acorns are small, blackish, and longitudinally marked with a few reddish lines, and they are so abundant as sometimes to cover the branches.

## § vii. *Phéllos. Willow Oaks.*



*Sect. Char., &c.* Leaves quite entire and lanceolate, dying off without much change of colour, in England; but, in America, sometimes persistent for two or three years. Young shoots straight, spreading, and wand-like. Bark very smooth, black, and never cracked. Fructification biennial. Cup imbricate. Nut roundish and very small. — Large trees and shrubs, the least beautiful in their foliage of the oak family.

### ♣ ♆ 24. *Q. P*HE'LLOS *L.* The *Willow* Oak.

*Identification.* Lin. Sp. Pl., 1412.; Pursh Fl. Amer. Sept., 2. p. 625.; Michx Quer., No. 7
*Synonymes.* *Q* virginiàna, &c., *Pluk. Alm.* p. 180; *Q. I*'lex marylándica *Raii Hist. Pl.*
*Engravings.* Michx. Quer., t. 12.; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1602.

*Spec. Char., &c.* Leaves membranaceous, linear lanceolate, tapering at each end, entire, smooth, with a small point. Nut roundish. (*Smith.*) A deciduous tree. Philadelphia to Georgia. Height 60 ft. to 70 ft., in some

soils and situations; and in others a shrub of diminutive growth. Introduced in 1723.

*Varieties.*

ϒ Q. P. 1 *sylváticus* Michx. Hist. des Chênes, No. vii. t. 12. (Our *fig.* 1602.) — The leaves are long and narrow on old trees, and trilobed on seedlings, as in *fig.* 1598.; and persistent, or deciduous, according to soil and situation.

1598. *Q. P.* sylváticus.

ϒ Q. P. 2 *latifòlius* Lodd. Cat. ed. 1826. (The plate of this tree in *Arb. Brit.*, 1st edit., vol. viii.; and our *fig.* 1599.) — A tree, with the leaves rather broader than those of the preceding form.

1599. *Q. P.* latifòlius.

Q. P. 3 *hùmilis* Pursh Fl. Amer. Sept. ii. p. 625., Catesb. i. t. 22. — Leaves shorter and deciduous. A shrub of low straggling growth.

Q. P. 4 *seríceus.* *Q. P*héllos *Smith and Abb. Ins.* ii. t. 51.; *Q. P.* pùmilus *Michx. Hist. des Chênes*, t. 13. f. 1. and 2.; *Q.* humilior salicis folio breviore *Cat. Car.* i. p. 22.; the Highland Willow Oak; *Q.* seríceа *Willd. Sp. Pl.* iv. p. 424., *Pursh Fl. Amer. Sept.* ii. p. 626.; *Q.* pùmila *Michx. N. Amer. Syl.* i. t. 17.; the running Oak. (Our *fig.* 1600.) — This curious little oak is the smallest of the genus, being only 20 in., or at most 2 ft., in height.

ϒ Q. P. 5 *cinèreus.* *Q. P.* γ *Lin. Sp. Pl.* 1412.; *Q. P.* β cinèreus *Ait. Hort. Kew.* ed. 1. iii. p. 354.; *Q.* hùmilis *Walt. Carol.* 234.; *Q.* cinèrea *Willd. Sp. Pl.* iv. p. 425., *Michx. N. Amer. Syl.* i. t. 16.; the Upland Willow Oak. (Our *fig.* 1601.) — This kind varies so much.

1600. Q. P. sericeus.

1601. Q. P. cinèreus.

both in height and general appearance, that individual plants have frequently been taken for distinct species. It is only found in the maritime parts of the Southern States, where it is rare, in comparison with many other species.

Q. P. 6 *marítimus* Michx. Quer. No. 7. Q. marítima *Willd. Sp. Pl.* iv. p. 424. — A low shrubby plant, from 3 ft. to 8 ft. high, according to Pursh; a native of the sea coast of Virginia and Carolina. The leaves are shorter than those of the species, and are persistent. It is sometimes called the evergreen willow oak.

1602. Q. Phéllos.

The leaves of this species are 2 or 3 inches long, of a light green, smooth, narrow, entire, and very similar to those of the willow; whence the name of the willow oak, by which this species is known throughout the greater part of America. The shoots are straight, long, slender, wand-like, and not crossing one another so much as in most of the other kinds of oaks; so that the tree is almost as much like the willow in its shoots as its leaves. The acorns (*fig.* 1566.*h*) are small, round, bitter, and of a dark brown colour: they are contained in shallow cups, slightly coated with scales; and, if kept in a cool place, they will preserve the power of germination for several months. Large trees of this species are not unfrequent in British gardens.

♀ 25. Q. (*P.*) LAURIFO'LIA *Willd.* The Laurel-leaved Oak.

*Identification.* Willd. Sp. Pl., 4. p. 427.; Ait., 2d ed., 5. p. 288.; Pursh Sept., 2. p. 627.; Michx. Quer., No. 10.
*Synonymes.* The Laurel Oak, Swamp Willow Oak.
*Engravings.* Michx. Quer., t. 17.; and our *fig.* 1604.

*Spec. Char., &c.* Leaves obovate, entire, smooth, nearly sessile; tapering at the base. Nut roundish, even. (*Smith.*) A deciduous tree. South Carolina and Georgia. Height 50 or 60 feet. Introduced in 1786.

*Variety.*

♀ Q. (P.) l. 2 *hýbrida* Michx. Quer. No. 10. t. 18. Q. *l.* 2 obtùsa *Ait.*

1603. Q. (P.) l. hybrida.

1604. Q. (P.) laurifolia.

*Hort. Kew.* ed. 2. v. p. 288. (Our *fig.* 1603.)—Rather more obtuse leaves than the species.

The whole of the American oaks belonging to the section *P*héllos are remarkable for retaining their leaves, in particular soils and situations, for two, three, and in some cases even four, years, without their changing colour; differing in this respect, both from evergreens, which change their leaves in the spring of every year; and from those deciduous trees which retain their leaves in a withered state during winter.

1605. Q. imbricaria.

☨ 26. Q. IMBRICA'RIA *Willd.* The Shingle Oak.

*Identification.* Willd. Sp. Pl. 4. p. 428; Pursh Sept., 2. p. 627.; Michx. Quer., No. 10.
*Synonymes.* Q. latifolia *Hort.*; Laurel Oak, Filed-Cup Oak, Jack Oak, Black Jack Oak, *Amer.*; Chêne à Lattes, *Fr.*
*Engravings.* Michx. Quer., t. 15, 16.; N. Amer. Syl., 1. t. 15.; and our *fig.* 1605.

*Spec. Char., &c.* Leaves elliptic-oblong, acute at each end, entire, almost sessile; downy beneath. Nut nearly globose. (*Smith.*) A deciduous tree. Alleghanies, but rare. Height 40 or 50 feet. Introduced in 1786.

The leaves are long, lanceolate, entire, and of a shining green. The trunk is branching, and often crooked; and the wood, though hard and heavy, has open pores like that of *Q.* rùbra.

☨ 27. Q. HETEROPHY'LLA *Michx.* The various-leaved, *or Bartram's*, Oak.

*Identification.* Michx. Amer. Syl., 1. p. 75.; Pursh Fl. Amer. Sept., 2. p. 627.
*Engravings.* Michx. Amer. Syl., t. 18.; and our *fig.* 1606.

*Spec. Char., &c.* Leaves on long footstalks, ovate-lanceolate or oblong, entire or unequally toothed. Cup hemispherical. Nut roundish. (*Michx.*) A deciduous tree, 30 ft. high, of which only one individual has been found. Banks of the Schuylkill, four miles from Philadelphia. Introduced ? 1820. Horticultural Society's Garden; and at Verrières, the villa of M. Vilmorin, near Paris.

1606. Q. heterophylla.

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Q. *agrifòlia* Willd. (described in *Arb. Brit.*, 1st edit., p. 1894., after Pursh and others) appears to be nothing more than *Q.* coccífera.

## B. *Leaves evergreen.*

### A. *Natives of Europe.*

### § viii. *Ilex. Holm, or Holly, Oaks.*

*Sect. Char.* Leaves ovate or oval, sometimes lanceolate, entire or serrated; with or without prickly mucros; downy beneath. Bark smooth and black, or rough and corky. Fructification biennial. Cups imbricate. Nut ovate, acuminate; sometimes very long in proportion to the cup.—Low trees or shrubs, of great commercial interest, from including the oaks which produce cork, the kermes insect, and edible acorns.

♀ 28. *Q. Ilex L.* The *common evergreen, or* Holm, Oak.

*Identification.* Lin. Sp. Pl., 1412.; Ait. Hort. Kew., 5. p. 289.
*Synonymes.* *Ilex* arbòrea *Bauh. Hist.* 1. p. 95.; l'Yeuse, or Chêne vert, *Fr.*; Stein Eiche, *Ger.*; Elice, *Ital.*; Encina, *Span.*
*Engravings.* Blackw. Herb., t. 186.; N. Du Ham., t. 43, 44.; Dend. Brit., t. 90.; the plates of the tree in Arb. Brit. 1st edit., vol. vii.; and our *fig.*

*Spec. Char., &c.* Leaves ovate-oblong, acute, coriaceous, entire or serrated; hoary beneath. Bark even. Nut ovate. (*Willd.*) A middle-sized evergreen tree, or large shrub. South of Europe, North of Africa, Cochin-China and other parts of Asia. Height 15 ft. to 30 ft. rarely 60 ft. In cultivation in British gardens from a very remote period. Flowers greenish white; May. Acorns brown; ripening the second year.

*Varieties.* These are very numerous, and frequently very distinct; and, as in the case of every species of oak, they might be greatly increased by selecting from beds of seedling plants.

- ♀ Q. I. 1 *integrifòlia* Lodd. Cat. ed. 1836.—Leaves lanceolate, entire.
- ♀ Q. I. 2 *serratifòlia* Lodd. Cat. ed. 1836. (Our *fig.* 1607.)—Leaves lanceolate, serrated.
- ♀ ■ Q. I. 3 *fagifòlia* Lodd. Cat. ed. 1836. Phéllodrys *Matth. Valgr.* i. p. 189.; *Ilex* No. 3. *Du Ham. Arb.* i. t. 224. (Our *fig.* 1608.)—Leaves broader and less rigid, more or less undulated, and sometimes slightly serrated.

1607. *Q. I.* serratifòlia.

1608. *Q. I.* fagifòlia

1609. *Q. I.* latifòlia

- ♀ ■ Q. I. 4 *críspa* Lodd. Cat. ed. 1836.—Leaves wrinkled at the edges.
- ♀ ■ Q. I. 5 *latifòlia* Lodd. Cat. ed. 1836. *Q. I.* oblónga *Hort.* (The plate of this variety in *Arb. Brit.*, 1st edit., vol. viii.; and our *figs.* 1609. and 1610.)—Leaves broad, nearly entire.
- ♀ ■ Q. I. 6 *longifòlia* Lodd. Cat. ed. 1836. *Q. I.* salicifòlia *Hort.*—Leaves long and very narrow.
- ♀ ■ Q. I. 7 *variegàta* Hort.—Leaves variegated with white.

1610. Q. I. latifòlia.

In favourable situations, in the South of France, Spain, and Italy, and also in the warmest parts of England and Ireland, the *Q. Ilex* forms a bushy evergreen tree, exceeding the middle size. The trunk is generally furnished with branches from the ground upwards; and, being concealed by the dense mass of foliage borne by these branches, the general character of the species, even when fully grown, is that of an immense bush, rather than that of a timber tree. When judiciously pruned, or drawn up by other trees, however, it forms a handsome well-balanced head, on a straight trunk, and with graceful pendent branches. The roots descend to a very great depth, altogether disproportionate to the height of the trunk; for which reason this oak is never found indigenous to soil with a wet bottom. The bark is black, thin, hard, and even; sometimes slightly furrowed, but never corky. The leaves vary exceedingly in shape and size, from 5 in. in length and nearly 3 in. in breadth (as in *Q. I.* latifòlia and *Q. I.* fagifòlia), to 1 in. in length and ½ in. in breadth (as in *Q. I.* crispa), or ½ in. in breadth and 3 in. in length (as in *Q. I.* salicifòlia). In some plants, the leaves are prickly, like those of the holly; and, when this is the case, the most prickly are nearest the ground; a circumstance beautifully exemplified in a fine tree at Purser's Cross. The colour of the leaves is a dark green; and, being convex above, and quite smooth, they have a fine shining appearance. In the climate of London, seedling plants grow with considerable rapidity; attaining, in good loamy soil, from 15 ft. to 20 ft. in height in 10 years from the acorn. As they become larger, they grow slower; and, after they have attained the height of 30 or 40 feet, they increase in width nearly as much as in height. The tree attains a great age, remaining in a growing state for several centuries. The sap wood is whitish; but the heart, or perfect wood, is of a brown colour, very close-grained, heavy, and very hard. It weighs 70 lb. to the cubic foot, and takes a fine polish; but twists and splits a great deal in drying, like most other hard and heavy woods. It is of great duration, and

1611. Q. Ilex.

also of considerable flexibility. Boutcher recommends the tree for making warm and lofty hedges, 40 or 50 feet high, in a short time. A dry deep soil, calcareous or sandy rather than clayey, and a situation low rather than elevated, best suit the ilex. It is exceedingly difficult to propagate, otherwise than by the acorn; and no tree is more difficult to transplant, "as the roots of it, when not interrupted, run as straight down into the earth as a carrot;" and hence the best mode is to have the plants raised in small pots, one in a pot, as is generally practised in the London nurseries.

### ♠ 29. *Q.* (*I.*) *BALLO'TA* Desf. The sweet Acorn Oak.

*Identification.* Desf. Atl., 2. p. 350.; Willd. Sp. Pl., 4. p. 432.; N. Du Ham., 7. p. 157.
*Synonymes.* ? *I'lex* major *Clus. Hist.* 1. t. 23.; Chêne à Glands doux, Chêne Ballote, *Fr.*
*Derivation.* The term *Ballòta* seems to be a modification of the Spanish word *bellota*, which means acorns generally.
*Engravings.* Our *figs.* 1612. and 1613., the latter being a sprig, and the former a leaf of the natural size, both taken from a specimen of the original tree, planted by Desfontaines in the Jardin des Plantes, at Paris.

*Spec. Char., &c.* Leaves elliptical, coriaceous, denticulated or entire; downy beneath. Bark even. Nut cylindrical, elongated. (*Desf.*) An evergreen tree or large bush. Barbary, in Algiers and Morocco. Height 20 or 30 feet, with a trunk from 3 ft. to 6 ft. in circumference. Introduced in 1696.

1612. *Q.* (*I.*) *Ballòta.*

1613. *Q.* (*I.*) *Ballòta.*

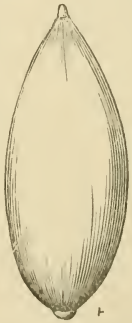
Obviously a variety of *Q. I'lex*; from which, however, it differs in its leaves being more rounded at the ends, and also more white and cottony beneath, and of a more coriaceous texture; and in its acorn being of double the length of that of *Q. I'lex*, and in having a mild and agreeable taste.

### ♀ ♠ 30. *Q.* (*I. B.*) GRAMU'NTIA *L.* The *Holly-leaved* Grammont Oak.

*Identification.* Lin. Sp. Pl., 1413.; N. Du Ham., 7. p. 158.
*Synonymes.* ? *I'lex* fóliis rotundióribus, &c., *Magn. Monsp.* 140.; Chêne de Grammont, *Fr.*; Wellenblättrige Eiche, *Ger.*; Encina dulce, and Gouetta, *Span.* Captain S. E. Cook suggests that *Q.* hispánica would be the most suitable name for this species, which may be considered as forming the natural oak of Spain; whereas the term gramúntia was applied to it by Linnæus, from its having been found in the remnant of a wood on the estate of Grammont, near Montpelier, where, according to DeCandolle, the species no longer exists.
*Engravings.* Our *fig.* 1614., from the tree at Purser's Cross; *fig.* 1615., an acorn of the natural size, traced from one that was sent to us by Captain Cook; and the plate of the tree at Purser's Cross, in Arb. Brit., 1st edit.

*Spec. Char., &c.* Leaves roundish-elliptical, nearly sessile, undulated, with deep, spinous, divaricated

1614. *Q.* (*I. B.*) gramúntia.


1615. *Q.* (*I. B.*) gramúntia.

1616. *Q.* (*I. B.*) g. Coókii.

teeth; densely downy beneath; heart-shaped at the base. An evergreen tree or large bush. Grammont, near Montpelier; and throughout Spain.

Height 20 ft. to 40 ft. Introduced in 1730. Flowers greenish white; June. Nut brown; ripe in the autumn of the following year. Apparently nothing more than a variety of *Q. Ballòta.*

*Variety.*

♀ ✱ Q. (I. B.) *g.* 2 *Coókii.* Q. Coókii Arb. Brit. 1st edit. p. 1926. (Our *fig.* 1616.) — Either identical with the species, or a slight variety of it.

A straggling tree, with numerous round grey branches, downy when young. Leaves scarcely 1 in. long, rigid, broadly elliptical, often nearly orbicular; very much undulated at the margin, their deep, broad, spinous teeth pointing every way, like those of the holly; the upper surface dark green, rather glaucous, besprinkled with minute starry hairs; the under surface densely clothed with white entangled down. In the *Nouveau Du Hamel,* great doubts are expressed as to whether this species is identical with the *Q.* rotundifòlia of Lamarck; and whether both sorts may not be merely varieties of *Q. Ilex,* which we believe to be the case.

✱ 31. *Q.* COCCI'FERA *L.* The *Kermes, or* Berry-bearing, Oak.

*Identification.* Lin. Sp. Pl., 1413.; N. Du Ham., 7. p. 160.
*Synonymes.* *Ilex* coccífera *Cam. Epit.* 774.; *I.* aculeàta cocciglandífera *Garid. Aix.* p. 245.; *I.* coccígera *Ger. Emac.* p. 1342.; Chêne aux Kermes, *Fr.*; Kermes Eiche, *Ger.*; Querce del Kermes, *Ital.*
*Engravings.* Garid. Aix., t. 53.; N. Du Ham., 7. t. 46.; Wats. Dend. Brit., t. 91.; our *fig.* 1617. from the N. Du Ham., and *fig.* 1618. from Watson.

*Spec. Char., &c.* Leaves elliptic-oblong, rigid; smooth on both sides, with spreading, bristly, spinous teeth. Fruit on peduncles; nut ovate. Calyx with spreading, pointed, somewhat recurved scales. (*N. Du Ham.*) A low bushy evergreen shrub. South of Europe and the Levant. Height 3 ft. to 5 ft. Introduced in 1683. Flowers greenish white; May. Acorns rarely ripened in England.

The whole plant resembles a holly in miniature; but the leaves are of a paler green, and they vary exceedingly in magnitude. This oak is well known as producing the kermes, or scarlet grain, of commerce. The fruit is but of a very small size the first year, and does not attain maturity till the

1617. *Q.* coccífera.

1618. *Q* coccífera.

end of the second. The nuts are oval, and are enveloped for half their length in a cup furnished with rough scales terminating in rough points, which are almost woody, spreading, and a little recurved. Propagated from the acorns, which are received from the Continental nurserymen.

♀ ✱ 32. *Q.* PSEU'DO-COCCI'FERA *Desf.* The false *Kermes, or* Berry-bearing, Oak.

*Identification.* Desf. Atl., 2. p. 349.; N. Du Ham., 7. p. 160.
*Synonymes.* Chêne à faux Kermes, *Fr.*; Stechernde Eiche, *Ger.*
*Engravings.* N. Du Ham., t. 48. f. 1.; and our *fig.* 1619.

1619.

*Spec. Char., &c.* Leaves elliptic-oblong, rigid, smooth on both sides, with spiny serratures. Nut ovate. Calyx with flat slightly spreading scales. (*Desf.*) "Observed by Desfontaines at Algiers

and about Mount Atlas," where it forms a tree from 15 ft. to 20 ft. high, with round branches, clothed with rusty down when young. The leaves are twice or thrice as long as those of *Q.* coccífera, thicker, and less wavy, with much smaller and shorter spinous serratures, rather than teeth. Introduced ? 1820. Horticultural Society's Garden in 1834.

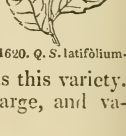
### ♇ 33. *Q. Su'ber L.* The Cork Tree.

*Identification.* Lin. Sp. Pl., 1413.; N. Du Ham., 7. p. 159.
*Synonymes.* Sùber *Cam. Epit.* 115.; *S. Prinus Matth. Valgr.* 1. p. 127.; *S.* latifòlium, &c., *Du Ham. Arb.* 2. p. 291.; Chêne Liège, *Fr.*; Kork Eiche, *Ger.*; Sovero, *Ital.*; Alcornoque, *Span.*
*Engravings.* Hunt. Evel. Syl., t. in p. 362.; N. Du Ham., 7. t. 45.; Dend. Brit., t. 89.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1623.

*Spec. Char., &c.* Leaves ovate-oblong, bluntish, coriaceous, entire or sharply serrated; downy beneath. Bark cracked, fungous. (*Willd.*) An evergreen tree. South of Europe and North of Africa. Height 20 or 30 feet. Introduced in 1699. Flowers greenish white; May. Acorns brown; occasionally ripened in the climate of London.

*Varieties.* These, we have no doubt, are as numerous as the varieties of *Q. Ilex*, in countries where the tree is indigenous. None are in cultivation in British gardens under any particular name: but, the cork trees having been all raised from seed, their leaves will be found to vary in magnitude, in different places, in length relatively to breadth, and in the character of their margins, which are wavy, serrate, or dentate.

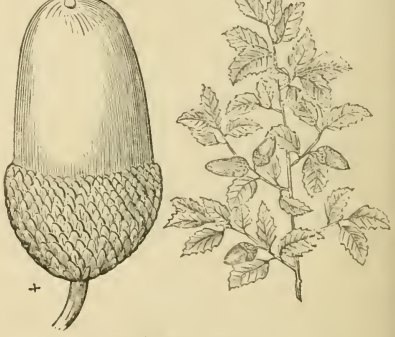
♇ Q. S. 2 *latifòlium.* Sùber latifòlium, &c., *Bauh. Pin.* 424., *Du Ham. Arb.* 2. p. 291. t. 80. (The plate of this tree in *Arb. Brit.*, 1st edit., vol. viii.; and our *fig.* 1620.) — Leaves rather broader than in the species, and either serrated or entire.


1620. *Q. S.* latifòlium.

♇ Q. S. 3 *angustifòlium.* Sùber angustifòlium *Bauh. Pin.* 424., *Du Ham. Arb.* 2. p. 291. t. 81. — The figure in *Dend. Brit.* t. 89. (our *fig.* 1621.) may be considered as this variety.

♇ Q. S. 4 *dentàtum.* *Q.* Pseùdo-Sùber *Hort.* — Leaves large, and variously dentate, as in *fig.* 1622.

1621. *Q. S.* angustifolium.


1622. *Q. S.* dentàtum.

The cork tree bears a general resemblance to the broad-leaved kinds of *Q. Ilex*; of which species some authors consider it only a variety: but, when full grown, it forms a much handsomer tree; and its bark alone seems to justify its being made a species. The outer bark, the great thickness and elasticity of which are owing to an extraordinary developement of the cellular tissue, forms the cork; which, after the tree is full grown, cracks and separates from it of its own accord. The inner bark remains attached to the tree, and, when removed in its young state, is only fit for tanning. The wood of the cork tree, which weighs 84 lb. per cubic foot, is used for the same purposes as that of *Q. Ilex*; but it is never found of sufficient size to be of much

consequence. By far the most important product which this tree yields, is its outer bark, which forms the cork of commerce. The bark is separated by first making a circular cut round the trunk, immediately under the main branches, and another at a few inches above the surface of the ground. The portion of bark intervening between the two cuts is then split down in three or four places; care being taken, both in making the circular cuts, and also the longitudinal ones, not to penetrate the inner bark. This operation is commonly performed in July, or in the beginning of August, when the second sap flows plentifully. The tree is now left for 8 or 10 years, when it is again disbarked as before. In British gardens *Q. Súber* is propagated by imported acorns, or by inarching on *Q. Ílex*.

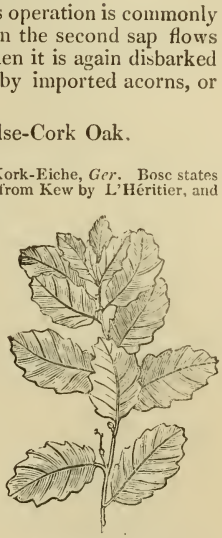
1623. Q. Súber.

### ♃ ♀ 34. *Q.* Pseu'do-*Su'ber* *Desf.* The False-Cork Oak.

*Identification.* Desf. Atl., 2. p. 348.; N. Du Ham., 7. p. 174.
*Synonymes.* Chêne faux Liège, Chêne de Gibraltar, *Fr.*; Unächte Kork-Eiche, *Ger.* Bosc states that he possesses a leaf of *Q. Túrneri*, which was brought to him from Kew by L'Héritier, and that it is identical with *Q.* Pseùdo-*Súber*; but the leaves of *Q. Túrneri* are not in the slightest degree hoary or glaucous beneath, nor has it a corky bark. See No. 35.
*Engravings.* Sant. Viagg., t. 4.; Spreng. Antiq. Bot., t. 1.; N. Du Ham., 7. t. 48. f. 2.; and our *fig.* 1625.

*Spec. Char., &c.* Leaves ovate-oblong or lanceolate; sinuated, dentated, or serrated; hoary beneath. Bark fungous, cracked. Nut ovate. Calyx muricated, with lax, recurved, linear scales. (*Desf.*) A sub-evergreen tree. Mountains of Tuscany, Spain, and Barbary, Mount Atlas, and near Tangier. Height 50 or 60 ft. Introduced in 1824.

*Variety.*
♀ Q. *P.* 2 *Fontanèsii*. *Q.* Fontanèsii Guss., Arb. Brit. 1st edit. p. 1925. (Our *fig.* 1624.) — Either identical with this species, or a very slight variety of it.


1624. Q. P. Fontanèsii.

The bark is corky, though less so than that of *Q. Súber*. Young branches downy or hoary; sometimes smooth, striated. Desfontaines describes the bark as fungous, as very thick, and as being, without doubt, capable of replacing the cork of Europe. The leaves are oval-oblong, dentated or serrated; smooth above, and pubescent beneath, remaining green a part of the winter; so that the tree may be considered as forming the connecting link between the evergreen oaks and the deciduous ones. *Q. Súber angustifolium* and *Q. Súber dentàtum* (p. 884.) may possibly be forms of this species.

1625. Q. Pseùdo Súber.

### ♃ 35. *Q.* Tu'rneri Willd. Turner's Oak.

*Identification.* Willd. Enum., 975.; Baumz., p. 339.
*Synonymes.* *Q.* hýbrida *Hort.*; Chêne de Turner, *Fr.*; Turnersche Eiche, *Ger.*
*Engravings.* Willd. Baumz., t. 3. f. 2.; and our *fig.* 1626. from a living specimen.

*Spec. Char., &c.* Leaves oblong, mucronate, dentate; glabrous on both sides; somewhat wedge-shaped at the base. Branchlets hairy. (*Willd.*) A sub-evergreen, or nearly evergreen tree, apparently a hybrid between *Q.* pedunculàta and *Q. Ílex*, having been found in a bed of seedlings of the former species, in 1795 or before, in Turner's Nursery, at Holloway Down, Essex. Height 40 ft. to 50 ft.

1626. Q. Túrneri.

Flowers and acorns have been produced in the Mile End Nursery. The leaves vary considerably in size, but not much in form, or in the character of their margins. Readily propagated by grafting on the common oak, from which, in summer, it can scarcely be distinguished at a distance, as its branches andleaves are so similar; but, in winter, its thick, glossy, and strictly evergreen foliage has a fine effect. On the whole, it is an exceedingly distinct and very handsome tree, by no means liable to vary in the form of its foliage, like what may be called the natural species of European and American oaks. It is rather more tender than *Q. Cérris Lucombeàna*, but, nevertheless, it retains its foliage nearly as long as that species.

♃ ♀ 36. *Q.* HY'BRIDA NA'NA. The dwarf hybrid Oak.

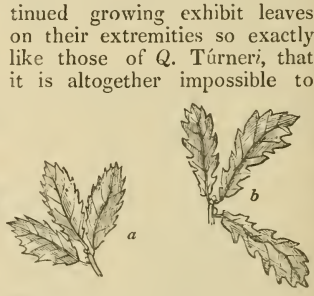
*Synonymes* *Q.* hȳbrida *Lodd. Cat.* 1836; *Q.* "a hybrid between *Q.* pedunculàta and *Q. I*'lex, in the Horticultural Society's Garden;" *Q.* hùmilis *Hort.*; *Q.* nàna *Hort.*
*Engravings.* Our *figs.* 1627. and 1628.

*Spec. Char., &c.* Leaves ovate or oblong, obtusely dentate, smooth, and of the same colour on both sides. Footstalks short. A sub-evergreen bush. Found, about 1825, in a bed of seedling oaks in the Bristol Nursery, where the original plant, in May, 1837, was between 8 ft. and 9 ft. high, with a trunk 8 in. in circumference at 1 ft. from the ground. Flowers ?.

In summer, the leaves, at a distance, bear a considerable resemblance to those of the common oak; but, on a nearer inspection, they appear as in *fig.* 1627. or in *fig.* 1628.: the first from the specimen tree in the Hackney arboretum, and the second from the arboretum at Milford. Towards the autumn, those shoots which have continued growing exhibit leaves on their extremities so exactly like those of *Q.* Túrneri, that it is altogether impossible to make any distinction between them. Propagated by grafting on the common oak. *Fig.* 1629. exhibits leaves (*a*, *b*) taken from the extremities of the shoots, in different parts of the same plant.

1627.

1628. *Q.* hȳbrida nàna.




1629.

B. *Natives of North America.*

## § ix. *Viréntes. Live Oaks.*

*Sect. Char.* Leaves oblong-lanceolate; dentate, and variously cut when young; but, on full-grown trees, quite entire. Bark smooth, black. Fructification biennial. Cup imbricate. Nut long. Low trees or shrubs; rather tender in Britain, and not attaining a timber-like size north of London.

♀ 37. *Q.* VI'RENS *Ait.* The green, *or Live*, Oak.

*Identification.* Ait. Hort. Kew., ed. 1., 3. p. 356.; Pursh Sept., p. 626.; Michx. Quer., No. 6.
*Synonymes.* *Q.* Phéllos *β Lin. Sp. Pl.* 1412.; *Q.* sempervirens *Banister*; *Q.* hemisphæ'rica *Brit. Bot. Gard.*
*Engravings.* Michx. Quer., t. 10, 11.; N. Amer. Syl., 1. t. 12.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our *figs.* 1630, 1631, 1632.

*Spec. Char., &c.* Leaves coriaceous, elliptic-oblong, revolute, entire, pointless; obtuse at the base; clothed with starry down beneath. Fruit stalked. Nut oblong. (*Willd.*) An evergreen tree. North America, in the maritime

1630. Q. virens.

parts of the Southern States. Height 30 ft. to 40 ft. Introduced in 1739 Flowers and fruit rarely produced in England.

The leaves are oval, coriaceous, of a dark green above, and whitish beneath; they persist during several years, but are partially renewed every spring. On old trees, growing wild in the forests, they are always entire, as shown in *fig.* 1631.; but, on seedlings of 2 or 3 years old, they are very distinctly toothed, as in *fig.* 1632. On trees growing in cool soils, or reared in plantations, they

1631. Q. virens.

1632. Q. virens.

are one half larger than those on the trees usually found in a wild state, and are often denticulated even on old trees. The acorns are of an elongated oval form, nearly black, and are contained in greyish pedunculated cups. In British gardens, this tree is seldom found higher than a large shrub, it requiring rather a warmer climate to attain a timber-like size.

? ♃ 38. *Q.* MYRTIFO'LIA *Willd.* No. 4., *N. Du Ham.* 7. p. 151.

Leaves coriaceous, oblong, entire, smooth, acute at each end. Carolina. See *fig.* 2103. in p. 1110. It is described in our first edition, p. 1920.

### c. *Natives of Nepal.*

### § x. *Lanàtæ. Woolly or downy-leaved Oaks.*

*Sect. Char.* Leaves oval-oblong or lanceolate, serrated or dentated, but not sinuated or lobed; woolly beneath. Trees evergreen, natives of Nepal; and only half-hardy in the climate of London. They may be propagated by cuttings, which root without much difficulty; and the plants require the protection of a wall.

#### ♃ 39. *Q.* LANA'TA *Smith.* The woolly-*leaved Nepal* Oak.

*Identification.* Smith in Rees's Cycl., No. 27.
*Synonymes.* *Q.* lanuginòsa *D. Don Prod. Fl. Nep.* p. 57.; *Q. Bánja* Ham. MSS.; ? *Q.* oblongàta *D. Don*, l. c.; ? *Q.* incàna *Royle Illust.* p. 341.
*Engraving.* Our *fig.* 1633. from the tree at Kew.

*Spec. Char., &c.* Leaves elliptic-oblong, sharply serrated, coriaceous; densely woolly beneath. Fruit in axillary solitary spikes. Calyx scaly, without prickles. (*Smith.*) A large evergreen tree. Upper Nepal, on mountains. Height 60 ft. to 80 ft.; in England a half-hardy shrub. Introd. in 1818. Flowers greenish white; May. Acorns occasionally produced

1633. *Q.* lanàta.

In its native country this is a tree of vast dimensions, with a scaly bark, and rigid, brown, warty branches, clothed, when young, with dense white down; but in England it has not yet been seen above 10 ft. high, and it requires to attain this height the protection of a wall. In the Hackney arboretum, and in that at Flitwick, plants of this species have stood out, without any protection, in the open garden for several years, but they are annually killed down within a short distance of the ground; nevertheless, in Messrs. Loddiges's nursery, plants in pots have borne acorns.

#### ♃ ♠ 40. *Q.* ANNULA'TA *Smith.* The ring-*cupped* Oak.

*Identification.* Smith in Rees's Cycl., No. 22.
*Synonymes.* *Q. Phullàta* Ham. MSS., D. Don Prod. Fl. Nep. p. 57.; ? *Q.* Kamroòp*ii* D. Don, l. c.; *Q.* glaúca *Lodd. Cat.* ed. 1836; ? *Q.* glaúca *Thunb.*; ? *Q.* acuminàta *Hort.*
*Engraving.* Our *fig.* 1634. from a living specimen.

*Spec. Char., &c.* Leaves ovate-lanceolate, pointed; dentately serrated, except towards the base; somewhat glaucous and downy beneath. Fruit spiked. Nut oblong. Calyx furrowed concentrically. (*Smith.*) A large evergreen tree. Nepal, in various places. Height 50 ft. to 60 ft.; in England a half-hardy shrub. Introduced in 1822.

1634. *Q.* annulàta

Leaves evergreen, rigid, somewhat silky beneath, the young ones very silky. Stipules linear, hairy, longer than the footstalks, deciduous. Male flowers in pendulous, hairy, yellowish, shortish spikes, springing from the buds below the leaves. There are specimens of this tree in the Botanic Garden at Kew, which are found to be decidedly hardier than the plants of *Q.* lanàta in the same garden.

## App. i. *European Kinds of Oaks not yet introduced.*

1635. Q. *fagínea.*

Q. *fagínea* Lam. Q. *ægilopifòlia Willd.* (our *fig.* 1635. from specimen in the Linnæan herbarium.) — Leaves on short downy footstalks, obovate, with numerous uniform shallow lobes; downy beneath; somewhat heart-shaped and unequal at the base. Fruit sessile. (*Smith.*) Natives of Spain and the south of France. Introd. 1840.

Q. *ægilopifòlia* Pers. Syn. 2. p. 570., Q. hispánica β *Lam.*, has oval, sinuated, and dentated leaves, the teeth of which are close together and almost obtuse; green above, and downy beneath. The acorns are pedunculated, and half-enclosed in a smooth cup. The bark is cracked, but not corky. Native of Spain.

Q. Bróssa *Bosc, Mém. sur les Chênes*, p. 319. (Chêne Brosse *at Nantes;* Chêne nain *Bonami*) bears so great an analogy to Q. pyrenàica (see p. 853.), that, according to Bosc, it may possibly be only a variety of that species.

Q. *viminàlis* Bosc, Mém. sur les Chênes, p. 316. (Chêne Saule, Chêne Osier, Chêne de Hai, *Fr.*) is found in the departments in the East of France. It is common on the Jura, and on the mountains of the Vosges. It seldom grows higher than 6 or 8 feet; with a grey bark; leaves resembling those of Q. pedunculàta, but much smaller, of a brighter green, and always very smooth.

Q. *áspera* Bosc, Mém. sur les Chênes, p. 328. (le Chêne âpre, *Fr.*) has the leaves petioled, coriaceous, of a medium size, elongated irregularly, but not deeply lobed; the lobes broad, pointed, and mucronated. The upper surface of the leaf is studded with small tubercles, beset with stiff bristle-like hairs disposed in stars, which are very rough to the touch; the under surface is downy. This species does not attain any great height.

*Chêne Lézermien* Bosc, Mém. sur les Chênes, p. 328., is described as nearly allied to the preceding kind.

*Chêne Castillan* Bosc, Mém. sur les Chênes, p. 328., has the leaves oval, pointed, slightly tomentose beneath, with unequal teeth, each terminated by a sharp turned up point. The acorns are borne three or four together on short peduncles. Abundant on the sandy mountains of Old Castile.

1636 Q. lusitánica.

1637. Q. prásina.

Q. lusitánica *Lamb.* (our *fig.* 1636.), Q. prásina *Pers.* (our *fig.* 1637.), Q. calycìna *Poir.*, Q. expánsa *Poir.*, Q. rotundifòlia *Lam.*, and Q. hùmilis *Lam.*, are described in our first edition.

## App. ii. *Oaks of Africa, Asia Minor, and Persia, only partially introduced.*

Q. *obtécta* Poir. Dict. Encyc. Suppl. 2. p. 218., N. Du Ham. 7. p. 163. — A very doubtful species.

Q. *infectòria* Oliv. Voy. dans l'Emp. Ottom. 1. p. 253. t. 14. Q. cariénsis *Willd.*; Chêne à Galles, *Fr.*; Färber Eiche, *Ger.* (Our *figs.* 1638. and 1639.; the first from Olivier, and the second from Du Hamel.)—Leaves ovate-oblong, very smooth on both sides, deeply toothed, somewhat sinuated, deciduous. Fruit sessile; ripening the second year. Calyx tessellated. Nut elongated, nearly cylindrical. (*Sm.*) A deciduous shrub. Turkey and Greece, and the North of Africa. Height 4 ft. to 6 ft. Introduced ?.

1638. Q. infectòria.

1639. Q. infectòria.

The leaves are about 1 or 1½ inches long, bright green, smooth on both sides, but paler beneath; their serratures are deep and broad, not acutely pointed. Fruit solitary, nearly sessile. Cup slightly downy; its scales not very distinct. Acorn two or three times longer than the cup, smooth, nearly cylindrical. Olivier observes that this plant, besides producing the galls of commerce, bears a number of different kinds of this excrescence, which are neglected as useless. The description and figures of these galls, and of the insects which cause their production, are in our first edition.

Q. Libàni *Oliv.* t. 49. f. 2. (our *fig.* 1640.), Q. rígida *Willd.* (*fig.* 2104. in p. 1110.), Q. ibérica *Stev.*, Q. castaneæfòlia *C. A. Meyer* (Plantæ Caspico-Caucasicæ, 1. p. 9. t. 1.; and our *fig.* 1641.), and Q. mongólica *Fisch.* are described in our first edition.

1640. Q. Libàni.

Q. *mannífera* Lindl. Bot. Reg. Chron., 1840, No. 72., and also Q. mongólica, appear to be nothing more than varieties of Q. sessiliflòra. The latter produces the Koordistan manna, a sweet glutinous substance, which oozes from the upper surface of the leaves during the hottest months of the year. (See *Penny Cyc.*, art. Quercus, p. 215.; and Q. sessiliflòra, in our p. 851.)

1641. Q. castaneæfòlia.

Q. *règia* Lindl. Bot. Reg. Chron. 1840, No. 73.. has the general appearance of a sweet chestnut ; but, being described from imperfect specimens, very little can be said about it with certainty. Native of Koordistan.

Q. *Brántii Lindl.* Bot. Reg. Chron. 1840, No. 74., appears to be nearly allied to Q. Ilex. Named after Mr. Brant, the discoverer, and it is hoped that acorns will soon be introduced.

## App. iii. *Himalayan Oaks only partially introduced.*

It is observed by Dr. Royle, that the Himalayan oaks vary much in appearance, and that, in all probability, the number of kinds at present enumerated as species will hereafter undergo " some reduction." It has also been suggested to us by Professor Don, that several of the Nepal and Japan oaks described by authors under different names are probably the same. As seeds of every kind are constantly received from the Himalayas, some of these kinds may be already in the country, and probably the whole will be soon obtained.

Q. *spicàta* Smith in Rees's Cycl. No. 12. Q. squamàta *Rox. Hort. Beng.* p. 68.; Q. *A'rcula* Ham. MSS. (Wallich Pl. As. Rar. Asiat., t. 46. ; and our

1642. Q. spicàta.

*fig.* 1642.) — Leaves elliptic-lanceolate, quite entire, very sharply pointed ; acute at the base, sometimes obtuse ; smooth. One of the largest, as well as the commonest, sorts of oak in Nepal, where it attains the most gigantic size. The wood is exceedingly like the English oak in colour, and most probably

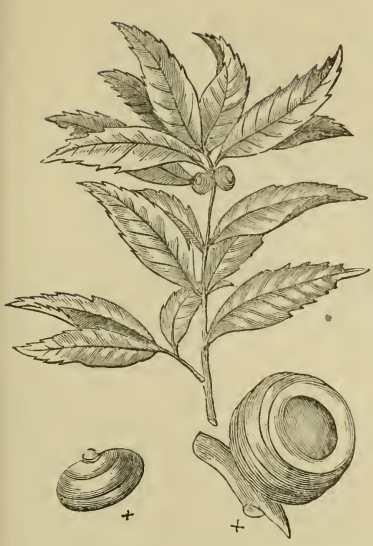
equals it in other respects; but the mountaineers do not esteem it much, owing, as they say, to its speedy decay; a circumstance attributable no doubt to their employing it in its green state. A similar prejudice prevails in that country against the other species. Female flowers on a separate tree [probably accidentally], crowded 3 together in sessile groups along the spikes. Acorns eatable, but not very good; the size and shape of a large filbert, even-pointed, dark brown; their cups short, scaly. (*Smith.*)

1643. Q. grandifòlia.

Q. obtusifòlia *D. Don*, Q. grandifòlia *D. Don* (Lamb. Gen. Pin., 2. t. 8.; and our *fig.* 1643.), and Q. velutìna *Lindl.* (Wall. Pl. As. Rar., t. 150.; and our *fig.* 1645.) are described in our first edition.

Q. *lamellòsa* Smith. Q. imbricàta *Ham. MSS.*, *D. Don Prod. Fl. Nep.* p. 57. (Wall. Pl. As. Rar., t. 149.; our *fig.* 1644.)—Leaves elliptic or ovate, serrated, flat, glabrous, acute, on long footstalks; obtuse at the base; glaucous beneath; the veins continued to the serratures; veinlets raised. Cups solitary, sessile, depressed, and downy; composed of scales forming loosely imbricated, undulated, concentric layers, which surround the nut. Nut tomentose, bossed, depressed, shorter than the cup. (*Lindl. MSS.*, as quoted by Wallich.) A native of the mountains of Nepal; ripening its fruit towards the end of the year.

1644. Q. lamellòsa.



1645. Q. velutina.

1646. Q. semecarpifòlia.

Q. *semecarpifòlia* Smith (Wall. Pl. As. Rar., t. 174. ; and our *fig.* 1646.) is described in our first edition.

## App. iv. *Oaks of Japan, Cochin-China, and China, most of which have not yet been introduced.*

Q. *glàbra* Thunb. — Sieboldt states that this oak bears clipping, on which account it is very commonly found round places of worship and in gardens, where it is cut into the form of pyramids, globes, and other figures. In garden scenery, in Japan, where the geometrical style is imitated, this oak is used as the beech and the hawthorn are in Europe; but it has the advantage of these trees in being evergreen. Introduced to the Leyden Botanic Garden in 1830, and found there quite hardy. (*Sieb. Fl. Jap.*, p. 9.)

Q. concéntrica *Lour.*; Q. acùta *Thunb.*; Q. serràta *Thunb.*, introd. 1837; Q. glaúca *Thunb.*; Q. cuspidàta *Thunb.* (Sieb. Fl. Jap., t. 2 ; and our *fig.* 1647.); Q. dentàta *Thunb.*, hills of Japan ; Q. obovàta *Bunge*, and Q. chinénsis *Bunge*, are described in our first ed.

Bunge observed a third species on the mountains of Pan-Schan, very similar to Q. mongólica *Fisch.*

1647. Q. cuspidàta.

## App. v. *Oaks of Java, Sumatra, and the Molucca Isles, not yet introduced.*

Q. *sundàica* Blume Fl. Jav. t. 2. and 3., and our *figs.* 1648. and 1649. The

1648. Q. sundàica. 1649.

Sunda Oak.—Leaves elliptic, acuminate; narrowed towards the base; glabrous above, somewhat glaucous beneath; veins covered with down. Catkins solitary. A tree, attaining the height of 80 ft. and upwards, with smooth bark. It is not unfrequent in the woods of Western Java, in low grounds, and on the banks of rivers.

Q. *pruinòsa* Blume Fl. Jav. t. 1.; and our *fig.* 1650. The frosty Oak.—Leaves ovate or oval-oblong, acuminate; roundish at the base. Branchlets and leaves covered beneath with small yellowish scales. Fruit aggregate, in short spikes. Cup concave, covered with small scales. Nuts roundish-ovate. A beautiful tree, from 50 ft. to 60 ft. high, with a thick bark.

1650. Q. pruinòsa. 1651. Q. angustàta.

Q. *angustàta* Blume Fl. Jav. t. 7.; and our *fig.* 1651. The narrow-*leaved* Oak.—Leaves oblong, lanceolate; acute at each end; shining above, glaucous beneath. Catkins axillary, terminal, elongated. Cups flattish, rough with small scales. Nuts roundish-ovate. A large spreading tree, 80 ft. high, with compact wood. Common in the mountains of Gedé, at elevations of 4000 and 5000 feet. (*Blume.*)

Q. *pállida* Blume Fl. Jav. t. 4. and 5.; and our *figs.* 1652. and 1653. The pale Oak.—Leaves oval-oblong, very much pointed; acute at the base, quite entire; glabrous; pale-coloured beneath. Catkins terminal, diœcious; the male catkins branched, fastigiate; the female ones simple. A tree, from 50 ft. to 60 ft. high; flowering in June and July. Found near the sources of the river Tjibarrum, in the mountains of Gedé. (*Blume.*)

1652. Q. pállida.

1653. Q. pállida.

Q. *costàta* Blume Fl. Jav. t. 13, 14.; and our *figs.* 1654. and 1658. *d, e.* The ribbed-*cupped* Oak.—Leaves oblong, acuminate; acute at the base; glabrous; glaucous beneath. Catkins branched. Fruit peduncled. Nuts flat above, round beneath, immersed in the cup. Cups without teeth, surrounded by circular ribs. A tree, 70 ft. high, found in mountainous places. It is easily distinguished from all the others by the singular form of its cup.

Q. *rotundàta* Blume Fl. Jav. t. 11.; and our *fig.* 1655. The round-*fruited* Oak.—Leaves oblong, acuminate; attenuated at the base; glabrous; glaucous beneath Fruit in short one-sided spikes. Cups hemispherical, scaly at the

1654. Q. costàta.

1655. Q. rotundàta.

1656. Q. élegans. 1657. a, b, c. Q. placentària.

1658. d, e. Q. costàta. 1659. Q. glabérrima.

margin, but without teeth at the base. Nuts plano-convex on their upper part, rounded beneath. A tree, 70 ft. high, with compact heavy wood. It is found on high mountains, and flowers in August. (*Blume.*)

Q. *élegans* Blume Fl. Jav. t. 10.; and our *fig.* 1656. The elegant Oak.—Leaves obovate, or oval-oblong, bluntly acuminate, narrowed in the petiole, glabrous. Fruit in long spikes. A magnificent tree, with a thick trunk frequently attaining the height of 60 ft. A native of the woods of the province of Bantam, and in mountainous places. (*Blume.*)

Q. *placentària* Blume Fl. Jav. t. 9.; and our *fig.* 1657. *a*, *b*, *c*. The placenta-*cupped* Oak.—Leaves ovate-oblong, bluntly acuminate; roundish at the base; coriaceous, glabrous. Fruit in clusters. Cup covered with small tubercles. Nuts roundish, depressed. A tree, about 40 ft. high, found on the volcanic mountain of Gedé, at an elevation of 6000 ft. The wood is rarely used, although very hard, and capable of taking a fine polish. (*Blume.*)

Q. *glabérrima* Blume Fl. Jav. t. 8.; and our *fig.* 1659.—Introduced in 1837,

Q. *platycárpa* Blume Fl. Jav. t. 15.; and our *fig.* 1660. The broad-fruited

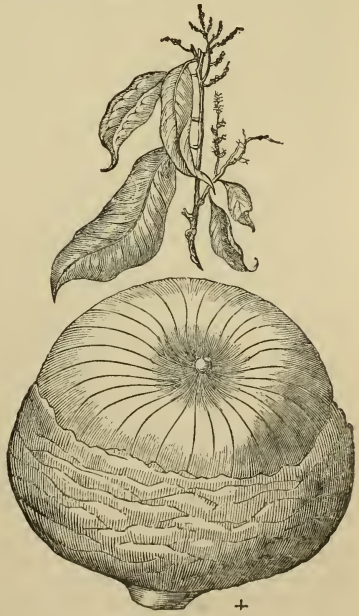
1660. Q. platycárpa.

1661 Q. daphnöidea.

Oak. — Leaves oval-oblong, acute ; somewhat wedge-shaped at the base; glabrous; shining above, glaucous beneath. Fruit peduncled, in short spikes. Cups surrounded beneath by hollow rings. Nuts round, depressed. A large tree, a native of the woods in the south of the province of Bantam. (*Blume.*)

Q. *daphnöidea* Blume Fl. Jav. t. 16.; and our *fig.* 1660. The Daphne-

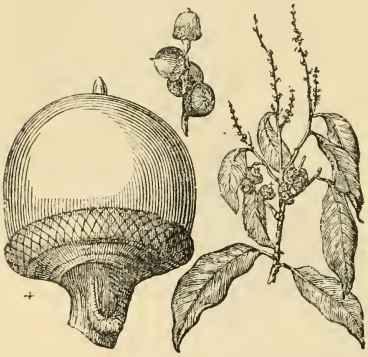
1662. Q. gemelliflòra.



663. Q. indùta.

like Oak.—Leaves oblong-lanceolate; sharp at both ends, quite entire, smooth; somewhat glaucous beneath. Fruit in long slender catkins, almost solitary. Cups surrounded by concentric rows of tubercles. Nuts ovate, sharp-pointed. A tall tree, a native of Bantam. (*Blume.*)

Q. racemòsa *Hook.* in *Comp. B. Mag.*, Q. gemelliflòra *Blume Fl. Jav.* t. 17. (our *fig.* 1662.), Q. indùta *Blume Fl. Jav.* t. 12. (our *fig.* 1663.), Q. urceolàris *Hook.*, and Q. Pseùdo-molúcca *Blume Fl. Jav.* t. 6. (our *fig.* 1664.), are described in our first edition.



1664. Q. Pseùdo-molúcca.

1665. Q. turbinàta.

Q. *molúcca* Lin. Sp. Pl. 1412., Willd. No. 11., N. Du Ham. 7. p. 153. The Molucca Oak. — Leaves elliptic-lanceolate, entire, acute at each end, smooth. Nut roundish, furrowed. (*Smith.*)

Q. *turbinàta* Blume Fl. Jav. t. 18.; and our *fig.* 1665. The top-shaped-*cupped* Oak.—Leaves oblong-lanceolate, sharp at both ends, sharply serrated towards the apex, glabrous. Cups top-shaped. A handsome tree, from 40 ft. to 50 ft. high; found on the mountain of Salak. It is nearly allied to Q. glaúca *Thunb.*; but the leaves are broader, less acute at the base, and not glaucous beneath. (*Blume.*) The acorns are of a very singular shape, and are enclosed in the cup.

Q. *lineàta* Blume Fl. Jav. t. 19.; and our *fig.* 1666. The parallel-veined Oak. — Leaves oblong-lanceolate, sharp at both ends, serrated or entire; glabrous above, glaucous and downy beneath. Nuts small, scarcely reaching a line above the cup; crowned at the tip by a long umbo. A large tree, attaining the height of 80 ft. and upwards. A native of the west of Java, in woods, at elevations of 5000 ft. to 6000 ft. (*Blume.*)

1666. Q. lineàta.

Many of the above species would doubtless prove hardy in the climate of London.

## App vi. *Mexican Oaks only partially introduced.*

Acorns of many kinds of Mexican oaks have lately been sent home by Hartweg, and other botanical collectors, so that there can be no doubt that several of the species enumerated above are already in the country.

Q. *xalapénsis* Humb. et Bonp. Pl. Æquin. t. 75. (our *fig.* 1667.) — Introduced in 1837. Horticultural Society's Garden.

1667. Q. xalapénsis.

1668. Q. glaucéscens.

Q. *glaucéscens* Humb. et Bonp. Pl. Æquin. t. 78., and our *fig.* 1668., Michx. N. Amer. Syl. p. 111. — Leaves on short footstalks, wedge-shaped, obovate; entire at the base; slightly repand and toothed towards the top; glaucous, and quite glabrous. Fruit racemose. (*Humb. et Bonp.*) A very tall straight tree, quite glabrous; younger branches angular. Introduced in 1839. Horticultural Society's Garden.

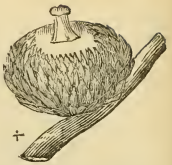
Q. *obtusàta* Humb. et Bonp. Pl. Æquin. t. 76., and our *fig.* 1669., Michx. N. Amer. Syl. 1. p. 112. — Leaves oblong; blunt at each end, unequal at the base, wavy at the margin, very veiny beneath, and somewhat downy. Fruit racemose. (*Humb. et Bonp.*) A native of New Spain, near Ario, at an elevation of about 6000 ft. (994 toises). A lofty tree, with a trunk from 3 ft. to 4 ft. in diameter, covered with a very thick deeply cracked bark.

1669. Q. obtusàta.

1670. Q. panduràta.

Q. *panduràta* Humb. et Bonp. Pl. Æquin. t. 77., and our *figs.* 1670. and

and 1671., Michx. N. Amer. Syl. 1. p. 111. — Leaves oval-oblong, somewhat fiddle-shaped; acute at the point, unequally cordate at the base, wavy and slightly sinuate on the margin, downy beneath. Fruit racemose. (*Humb. et Bonp.*) Found in the same habitat as the preceding. A tree, from 18 ft. to 24 ft. high.



1671. Q. panduràta

Q. *repánda* Humb. et Bonp. Pl. Æquin. t. 79., and our *fig.* 1672., Michx. N. Amer. Syl. 1. p. 108.—Leaves oblong-oval, on short footstalks; downy beneath, glabrous above; slightly repand, recurved at the margin. Fruit racemose. (*Humb. et Bonp.*) A shrub, 2 ft. high, branched from the very base, procumbent or erect. A native of New Spain, in moist shady places, between Real del Monte and Moran, at an elevation of above 7700 ft. (1291 toises).

1672. Q. repánda.

1673. Q. laùrina.

Q. *laúrina* Humb. et Bonp. Pl. Æquin. t. 80., and our *fig.* 1673., Michx. N. Amer. Syl. 1. p. 108. — Leaves oval-lanceolate, sharply acuminated, quite glabrous: some are a little 3-pointed at the tip. Fruit axillary, almost sessile. (*Humb. et Bonp.*) A tall tree, with the habit of *Laúrus nóbilis.*

1674. Q. sideróxyla.

1675. Q. mexicàna.

Q. *sideróxyla* Humb. et Bonp. Pl. Æquin. t. 85., and our *fig.* 1674.—Introduced in 1839. Horticultural Society's Garden.

Q. *mexicàna* Humb. et Bonp. Pl. Æquin. t. 82., and our *fig.* 1675. — Introduced in 1839. Horticultural Society's Garden.

Q. *crássipes* Humb. et Bonp. Pl. Æquin. t. 83., and our *fig.* 1676. — Introduced in 1839. Horticultural Society's Garden.

1676 Q. crássipes.

1677 Q. crássipes angustifòlia.

Q. *crássipes angustifòlia* Humb. et Bonp. Pl. Æquin. t. 84., and our *fig.* 1677., differs from Q. crássipes in the leaves being narrowed, and more diminished towards the point. Found, along with Q. crássipes, near Ario.

Q. *lanceolàta* Humb. et Bonp. Pl. Æquin. t. 81., and our *fig.* 1678., Michx. N. Amer. Syl. 1. p. 107. — Leaves lanceolate, quite entire, wavy; the axils of the veins bearded beneath;

1678. Q. lanceolàta.

1679. Q. reticulàta.

shining above. Fruit sessile. Scales of the cup turned backwards. (*Humb. et Bonp.*) A tree, from 30 ft. to 40 ft. high.

Q. *reticulàta* Humb. et Bonp. Pl. Æquin. t. 86., and our *fig.* 1679. — Introduced in 1839. Horticultural Society's Garden.

Q. *chrysophýlla* Humb. et Bonp. Pl. Æquin. t. 87., and our *fig.* 1680., Michx. N. Amer. Syl. 1. p. 108. — Leaves oblong; obtuse at the base, 3—5-pointed at the apex; yellow beneath. Female flowers in many-flowered pedunculated clusters. (*Humb. et Bonp.*) A tall tree; younger branches furrowed, as if with a powdery down.

1680. Q. chrysophylla.

1681. Q. pulchélla.

Q. *pulchélla* Humb. et Bonp. Pl. Æquin. t. 88., and our *fig.* 1681., Michx. N. Amer. Syl. 1. p. 110. — Leaves oblong, obtuse; emarginate at the base; covered with white down beneath; teeth short, mucronate. Fruit sessile, almost solitary (*Humb. et Bonp.*)

Q. *spicàta* Humb. et Bonp. Pl. Æquin. t. 89., and our *fig.* 1683. — Introduced in 1839. H. S. Gard.

1682 Q. stipulàris.

1683. Q. spicàta.

Q. *stipulàris* Humb. et Bonp. Pl. Æquin. t. 90., and our *fig.* 1682., Michx. N. Amer. Syl. 1. p. 109. — Leaves obovate, sharply toothed towards the

point; teeth terminated by mucros; covered on the under surface with woolly tomentum. Stipules persistent. Fruit sessile, almost solitary. (*Humb. et Bonp.*) A tree, about 50 ft. high. A native of the mountains of Mexico, near Actopan; forming entire forests, at an elevation of 7000 ft. (1330 toises).

Q. *crassifòlia* Humb. et Bonp. Pl. Æquin. t. 91., and our *fig.* 1685., Michx. N. Amer. Syl. 1. p. 110.—Leaves wedge-shaped, obovate; emarginate at the base, remotely toothed, repand; downy beneath. Peduncles short, bearing 1—3 acorns. (*Humb. et Bonp.*) A tree, from 40 ft. to 50 ft. high. A native of New Spain, near Chilpancingo.

1684. Q. deprèssa.

1685. Q. crassifòlia

Q. *deprèssa* Humb. et Bonp. Pl. Æquin. t. 92., and our *fig.* 1684., Michx. N. Amer. Syl. 1. p. 108. — Leaves oblong-oval, acute, entire, rarely mucronate; dentate, evergreen, quite glabrous. Fruit nearly sessile, and solitary. (*Humb. et Bonp*) An evergreen shrub, from 1 ft. to 2 ft. high.

Q. *ambígua* Humb. et Bonp. Pl. Æquin. t. 93., and our *fig.* 1686., Michx. N. Amer. Syl. 1. p. 111.—Leaves oblong-obovate, wavy; obtuse at the base; reticulately veined beneath, somewhat hairy. Female spike pedunculated. (*Humb. et Bonp.*) A tree, 40 ft. high.

1686. Q. ambígua.

1687. Q. confertifòlia.

1688.

Q. *confertifòlia* Humb. et Bonp. Pl. Æquin. t. 94., and our *figs.* 1686. and 1687., Michx. N. Amer. Syl. 1. p. 106. — Leaves evergreen, linear-lanceolate, mucronated, recurved at the margin, quite entire; downy beneath. Fruit sessile. (*Humb. et Bonp.*) An evergreen shrub, from 15 ft. to 20 ft. high. A native of the temperate and mountainous regions of New Spain, between the town of Guanajuata and Santa Rosa. Introduced in 1837.

Q. *trìdens* Humb. et Bonp. Pl. Æquin. t. 96., and our *fig.* 1689., Michx. N. Amer. Syl. 1. p. 107.—Leaves oblong, retuse at the base, generally broader towards the apex, 3-dentate; teeth terminated by bristly points; downy beneath. Spikes of female flowers almost sessile. (*Humb. et Bonp.*) A shrub, about 10 ft. high, with round smooth branches. A native of New Spain, and common in the vicinity of Moran.

1689. Q. tridens.

1690. Q. acutifòlia

Q. *acutifòlia* Willd., Humb. et Bonp. Pl. Æquin. t. 95., and our *fig.* 1690 —Introduced in 1839. Horticultural Society's Garden.

Q. elliptica *Willd.*, Q. mucronàta *Willd.*, Q. tomentòsa *Willd.*, Q. circinàta *Willd.*, Q. spléndens *Willd.*, Q. rugòsa *Willd.* (*fig.* 1691.), Q. macrophýlla *Willd.*, Q. diversifòlia *Willd.*, Q. cándicans *Willd.*, Q. microphýlla *Willd.*, Q. lobàta *Willd.*, Q. magnoliæfòlia Willd. Q. lùtea *Willd.*, and Q. salicifòlia *Willd.*, are described in our first edition.

1691. Q. rugòsa.

Q. *lancifòlia* Cham. et Schlect. Linnæa v. p. 78. — Leaves smooth, narrow, oblong-lanceolate, serrate, dentate, subcoriaceous, feather-nerved. Fruit sessile. Capsule subhemispherical. Nut conoid. Leaves 3 in. to 6 in. long. Found near Mollino de la Pedreguera. Introduced in 1839. H. S.

Q. *petiolàris* Benth. Plant. Hartweg. No. 420. — Leaves oblong, acute, entire; woolly beneath. Fruit sub-sessile, sub-solitary. Leaves between 2 in. and 3 in. long. A tree, 40 ft. high. Found on hills near Huasca. Introduced in 1839. Horticultural Society's Garden.

Q. dysophýlla *Benth. Plant. Hartweg.* No. 421., Q. *A'lamo* Ibid. No. 423., Q. barbinérvis *Ibid.* No. 427., Q. glabréscens *Ibid.* No. 428., Q. Hartwègi Ibid. No. 432., and some others, have been discovered by Hartweg, who has sent home specimens of all, and acorns of some, to the Horticultural Society.

## GENUS II.

### FA'GUS *L.* THE BEECH. *Lin. Syst.* Monœ'cia Polyándria.

*Identification.* Lin. Gen., No. 1072.; Willd. Sp. Pl., 1694.; N. Du Ham., 2. p. 79.
*Synonymes.* According to Bauhin, the Fagus of the Romans, and the Oxua of the Greeks; Castànea *Tourn.* 352.; Hêtre, *Fr.*; Buche, *Ger.*; Beuke, *Dutch*; Bog, *Dan.*; Bok, *Swed.*; Buk, *Russ.* and *Pol.*; Faggio, *Ital.*; Haya, *Span.*; Faya, *Port.*
*Derivation.* From *phagō*, to eat; because the nuts were used as food in the early ages.

*Gen. Char., &c.* *Male flowers* in stalked drooping heads or capitate catkins, 3 or 4 in each, attended by minute deciduous bracteas. Each flower consists of a 5—6-cleft bell-shaped calyx, and 8—12 stamens, that arise from the bottom of the calyx, and extend beyond its mouth. — *Female flowers* borne 2—6 together, within a pitcher-shaped indistinctly 4-lobed involucre, constituted of numerous unequal bracteal scales, and interior scales, grown together. Each flower consists of a calyx, lengthened into a laciniate limb, and investing the ovary. *Fruit* nuts. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous, rarely evergreen; entire or serrated, feather-veined, plaited in the bud. *Flowers* whitish yellow. *Fruit* covered with a hairy calyx. — Trees large, deciduous, handsome, and some evergreen shrubs; natives of the colder parts of Europe, North and South America, and Australia.

A. *Cupule muricate, capsuliform. Ovaries included. Young leaves plicate.* Natives of Europe, and of North and South America.

a. *Species in Cultivation in British Gardens.*

♆ 1. *F.* SYLVA'TICA *L.* The Wood, *or common*, Beech.

*Identification.* Lin. Sp. Pl., 1416.; Eng. Fl., 4. p. 152.; Hook. Br. Fl., ed. 3. p. 411.
*Synonymes.* Castànea *Fagus Scop. Carn.* No. 1188.; Fàgus *Bauh. Pin.* 419. *F.* sylvéstris *Michx. N. Amer.* 3. t. 107. Oxya, *Greek;* Fagus, *Lat.*; Hêtre commun, *Fr.*; gemeine Buche, *Ger.*; Rood beuke, *Dutch.*
*Engravings.* Eng. Bot., t. 1846.; N. Du Ham., t. 24.; the plate of this tree in Arb. Brit. 1st edit vol. viii. and our *fig.* 1696.

*Spec. Char., &c.* Leaves ovate, glabrous, obsoletely dentate; ciliate on their margins. (*Willd.*) A large deciduous tree. Various parts of Europe; and one variety in North America. Height 60 ft. to 100 ft. Flowers brownish; May. Nut brown; ripe in October.

*Varieties.*

♆ F. *s.* 2 *purpùrea* Ait. Hort. Kew. v. p. 297. *F.* s. 2 àtro-rùbens *Du Roi*; Hêtre noir, *Fr.*; the purple Beech. — The buds and young shoots are of a rose colour: the leaves, when half-developed, of a cherry red; and, when fully matured, at midsummer, of so dark a purple as to appear almost black. The bark, not only of the young shoots, but even of the old wood and of the trunk of the tree, partakes strongly of the same dark colour as the leaves.

♆ F. *s.* 3 *cùprea* Lodd. Cat. ed. 1836. The copper-coloured Beech. — A sub-variety of *F.* s. purpùrea. Young shoots and leaves of a paler colour than those of the purple beech. It makes a splendid appearance in the sunshine, and when the leaves are gently ruffled with the wind; but, in a state of repose, and on a dark cloudy day, it can hardly be distinguished from the common green-leaved beech.

♆ F. *s.* 4 *fòliis variegàtis* Lodd. Cat. ed. 1836. — The leaves variegated with white and yellow, interspersed with some streaks of red and purple. This variety is handsome in spring, when the leaves first make their appearance; but, in the course of the summer, their variegation is in a great measure lost, and the leaves assume a dirt

unhealthy aspect. There are also varieties with the leaves striped or blotched with white only, and others with only golden-striped leaves.

♀ F. *s.* 5 *heterophýlla.* *F.* s. laciniàta *Lodd. Cat.* ed. 1836; *F.* s. *as*plenifòlia *Lodd. Cat.* ed. 1836; *F.* s. incìsa *Hort.*; *F.* s. *s*alicifòlia *Hort.*; Hêtre à Feuilles de Saule, *Fr.*; the various, or cut, leaved

1692 *F.* s. heterophýlla.

1693. *F.* s. heterophýlla.

Beech. — The leaves variously cut, as in *fig.* 1692.; sometimes in narrow shreds, so as to resemble a fern, as in *fig.* 1693.; and, at other times, in shreds of greater breadth, like the leaves of a willow. This variety, which may be designated as more curious than beautiful, is very apt to return to the normal form.

♀ F. *s.* 6 *cristàta* Lodd. Cat. ed. 1836. *F.* s. críspa *Hort.*; Hêtre Crête de Coq, *Fr.*; the crested, or curled-leaved Beech. (The plate of this tree in *Arb. Brit.*, 1st edit., vol. viii.; and our *fig.* 1694.) — This variety is a monstrosity, with the leaves small, and almost sessile, and crowded into small dense tufts, which occur at intervals along the branches. The tree never attains a large size, as may be expected from its deficiency in foliage.

1694. *F.* s. cristàta.

♀ F. *s.* 7 *péndula* Lodd. Cat. ed. 1836. Hêtre Parasol, *Fr.*; the weeping Beech.—When this variety is grafted standard high, it forms a very singular and highly beautiful object, well deserving a place in collections of weeping trees. There is a splendid natural specimen in one of the plantations bordering Milton Park, in Northamptonshire, of which a plate is given in *Arb. Brit.*, 1st edit., vol. viii.

* F. *s.* 8 *americàna. F.* sylvéstris *Michx. N. Amer. Syl.* t. 107. ; white Beech, *Amer.* (Our *fig.* 1695.) — Generally considered by botanists as identical with the common European beech. In North America, it forms one of the tallest and most majestic trees of the forest, abounding in the middle, western, and southern states, in deep moist soil, and in a cool atmosphere. The trunks of the trees are frequently 8 ft., 9 ft., and 11 ft. in circumference, and more than 100 ft. high. The tree is less branchy than *F.* ferrugínea, or red beech of America ; and the perfect wood bears but a small proportion to the sap, frequently occupying only 3 in. in a trunk 1 ft. 6 in. in diameter.

1695. *F.* s. americàna.

The European beech is a handsome umbrageous tree, combining magnificence with beauty ; and being, as Mathews observes, at once the Hercules and Adonis of our sylva. The roots do not descend deeply into the soil, but extend to a considerable distance close under the surface. The rootlets and fibres are not nearly so numerous as in the ash and the elm. The plants, under nursery culture, do not grow so rapidly as those of the ash and the elm; but, under favourable circumstances, they will attain the height of 10 ft. in 5 years, and 20 or 25 feet in 10 years. In general, the tree attains its full growth, in England, in 60 or 80 years, when it is fit to be cut down for timber purposes ; and, on good soils, it is more than doubtful whether it will live much more than 100 or 150 years. The wood, which, when green, is harder than that of any of our British timber trees, weighs, when in this state, 65 lb. 13 oz. per cubic foot ; half-dry, it weighs 56 lb. 6 oz. ; and quite dry, 50 lb. 3 oz. The wood, when the tree has grown in good soil, and on plains, has a somewhat reddish tinge; but in poor soils, and on mountains, it is whitish. The durability of the wood is said to be increased by steeping it in water ; and, according to some, by disbarking the tree while standing. In England, at the present time, the beech is principally employed in making bedsteads and chairs ; and it is also in great demand for panels for carriages, and for various purposes in joinery, cabinet-making, and turnery. Screws, wooden shovels, peels for bakers' ovens, and rims for sieves, are also made of it, and in France sabots. As fuel, the wood of the beech is superior to that of most other trees, and the green wood is generally preferred to that which is dry, because it burns slower, though it does not give out so much heat ; and hence, in many places in France, the tree is frequently cut down in the summer season. The beech, burnt green, produces heat and light relatively to the beech burnt dry, as 1181 is to 1540. For useful plantations, the beech is not highly prized ; the tree not being of much value when young, nor forming a permanent coppice wood, and the bark being of little value. Beech of small size, or of short and crooked stem, is the least valuable of all timber. On dry chalky soils, it may be planted as a timber tree ; but here, as in many other cases where a straight clean trunk is wanted, the plants require to be drawn up, either by other trees of their own species, or by trees of a different species, which advance at nearly the same rate of growth ; such, for example, as the sweet chestnut. The beech succeeds best in plantations by itself ; and, perhaps, there is no membranaceous-leaved tree which, in a wild state in forests, is found so little intermixed with other species. It is one of the worst of all trees for hedgerows, not only injuring the fence and the adjoining crops by the density of its shade, but its trunk, when grown in this situation, being neither long, clean, nor straight, is of little value except for fuel. As undergrowth, the beech is not of long duration, seldom pushing from the stools after 40 or 50 years. For hedgerows for shelter, and especially for those lofty narrow hedges which were formerly much in use for enclosing and

1696. *F. sylvática*

sheltering gardens, orchards, and small fields for affording early grass, the beech has no equal among deciduous trees; for, as Boutcher observes, by retaining its withered leaves all the winter, it affords the same protection as an evergreen. The beech will grow on dry soils, including sand, gravel, and chalk, more freely than most other trees; though it is found in the greatest perfection in sandy calcareous loam, or in fresh sandy loam on clay or rock. The most magnificent beeches in France are in Normandy, on the private estate of the king, Louis Philippe, where the soil is a loam on chalk rock. The species is always raised from the seeds or nuts, which are commonly called mast. These begin to drop from the husks in the months of October and November; and this process may be accelerated by shaking the tree. The nuts may then be gathered up, and dried in the sun, or in an airy shed or loft; after which, they may be mixed with sand that is perfectly dry, at the rate of three bushels of sand to one of mast. By some, the mast is spread in a thin stratum on a loft floor, without any sand; where it remains till the following spring, being occasionally turned over, and being covered with straw to exclude the frost. The mast, from which an oil is made in France, retains its vital properties for one year only; and, therefore, it must be sown, at the latest, during the following spring. The common time is from the beginning of March till the beginning of April. Autumn might be adopted for sowing, were it not that the nuts are greedily sought after, through the winter, by mice and other vermin. The soil in which the nuts are sown ought always to be light, and more or less rich, as the plants are rather tender when young. They may either be sown in beds or in drills, with the usual covering of soil, being about 1 in. The seeds should not lie nearer to one another, when sown, than 1 in. Mast, sown in the autumn, will come up in April; and that sown in spring, seldom later than the beginning of May. The varieties are propagated by layers, inarching, or

grafting. When the latter practice is adopted, it is found to be more successful when the scions are of two years' growth, and when the graft is earthed up in the manner practised with the grafts of American oaks. (See p. 862.)

ǂ 2. *F.* FERRUGI'NEA *Ait.* The *American* ferruginous-*wooded* Beech.

*Identification.* Ait. Hort. Kew., 3. p. 362.; Michx. N. Amer., 3. p. 21.
*Synonymes.* *F.* americàna latifòlia *Du Roi Harbk.* 1. p. 269.; red Beech, *Amer.*
*Engravings.* Michx. N. Amer. Syl., 3. t. 106.; Wang. Amer., t. 29. f. 55.; and our *fig.* 1698.

*Spec. Char., &c.* Leaves ovate, acuminate, thickly toothed; downy beneath; ciliate on the margin. (*Willd.*) A deciduous tree, so much resembling the common European beech, as by some to be considered only a variety of it. North America. Height 40 ft. to 60 ft. Introduced in 1766, and not unfrequent in collections.

1697. *F.* f. carolinià̀na.

*Varieties.*

ǂ F. *f.* 2 *carolinià̀na.* *F.* carolinià̀na *Lodd. Cat.* ed. 1836. (Our *fig.* 1697.) — Leaves somewhat cordate at the base, ovate, slightly acuminate, obsoletely dentate, and somewhat mucronate. The colour is a very dark green, somewhat tinged with purple when fully mature. The veins of the under side of the leaf are somewhat hoary. Not common in collections.

ǂ F. *f.* 3 *latifòlia.* *F.* latifòlia of Lee's Nursery. (Our *fig.* 1699.) — Leaves lanceolate, acuminate; tapering at the base, feather-nerved, much longer than those of the preceding variety in proportion to their breadth, and of a lighter green.

1698. *F.* ferruginea

1699. *F.* f. latifòlia.

The American beech is easily known from the European one by its much shorter obtusely pointed buds, with short, roundish, convex scales, which terminate almost abruptly, and are enclosed in numerous, short, loose scales. Its leaves are equally brilliant with those of the white or European beech, a little larger and thicker, and more deeply serrated. Its fruit is of the same form, but only half as large; while the prickles of its calyx are less numerous, but firmer. The wood is somewhat red, or of a rusty hue, when mature; whence the name. Propagated by layers and grafting.

b. *Species not yet introduced.*

♀ 3. *F.* OBLI'QUA *Mirb.* The oblique-*leaved* Beech.

*Identification.* Mém. Mus., 14. p. 466.
*Engravings.* Mém. Mus., 14. t. 23.; and our *fig.* 1700.

*Spec. Char., &c.* Leaves ovate-oblong, oblique, somewhat rhomboid; blunt, doubly serrated, entire at the base; attenuated into the petiole, and somewhat downy. Perianth of the male flowers solitary, hemispherical, sinuated. Anthers 30—40. Cupules capsuliform, muricate, 4-partite; segments ovate, obtuse. Ovaries included, 3-sided; angles winged. (*Mirbel.*) A tall tree. Chili, near Conception; flowering in September.

1700. *F.* oblìqua.

B. *Cupule involucriform; Segments narrow, laciniate. Ovaries laterally inserted. Young leaves not plicate.* Natives of South America and Australia.

a. *Species introduced into Britain.*

♀ 4. *F.* BETULÖI'DES *Mirb.* The Birch-like, *or evergreen,* Beech.

*Identification.* Mirb. in Mém. Mus., 14. p. 470.
*Synonyme.* *Bétula antárctica Forst.* in *Comm. Goett.* 9. p. 45., *Willd. Sp. Pl.* 4. p. 466.
*Engravings.* Mém. Mus., 14. t. 25.; and our *fig.* 1701.

*Spec. Char., &c.* Leaves ovate-elliptic, obtuse, crenulate, leathery, shining, glabrous; round at the base, on short footstalks. Perianth of the male flowers solitary, turbinate, 5—7-lobed. Anthers 10—16. Cupules involucriform, smooth, 4-partite; segments nearly linear, laciniate. Ovaries 3-sided, laterally exserted; angles marginate. (*Mirbel.*) An evergreen tree. Terra del Fuego, where it forms vast forests. This beech is also a native of Van Dieman's Land, where it is called the myrtle tree by the colonists. It generally grows in the western part of the island, where an esculent fungus is found in clusters around the swollen parts of its branches. Said to have been introduced in 1830.

1701. *F.* betulöides.

♀ 5. *F.* ANTA'RCTICA *Forst.* The antarctic Beech.

*Identification.* Forst. in Comment. Goett., 9. p. 24.; Willd. Sp. Pl., 4. p. 460.
*Engravings* Our *fig.* 1702. from a specimen in Sir W. J. Hooker's herbarium; and *fig.* 1703. from the British Museum.

*Spec. Char., &c.* Leaves ovate, blunt, glabrous; attenuated at the base; doubly dentate; their margins naked. (*Willd.*) A tree or shrub, a native of Terra del Fuego. Branches rugged, tortuous. Leaves alternate, petiolate, 1½ in. long; plicate; veins on the under side somewhat downy; the teeth roundish, blunt. Said to have been introduced in 1830.

1702. *F.* antárctica.

1703. *F.* antárctica.

b. *Species not yet introduced into British Gardens.*

1704. *F.* Dombèyi.

♃ 6. *F.* DOMBE'YI Mirb. Dombey's, *or the Myrtle-leaved*, Beech.

*Identification.* Mém. Mus., 14. p. 468.; Comp. Bot. Mag., 1. p. 301.
*Engravings.* Mém. Mus., 14. t. 24.; and our *fig.* 1701.

*Spec. Char., &c.* Leaves ovate-lanceolate, somewhat rhomboid, pointed; serrated, coriaceous, shining, glabrous; wedge-shaped, and oblique at the base, on very short footstalks. Perianth of the male ternate, campanulate, 4—5-lobed. Anthers 8—10. Cupules involucriform, smooth, 4-partite; segments almost linear, laciniate. Ovaries laterally exserted, 3-sided; angles marginate. (*Mirb.*) A tall tree, a native of Chili, where it was found, along with *F.* obliqua, by the botanist after whom it had been named. Whether it is deciduous or evergreen we are uncertain; there being no living plants of it either in France or England.

♃ 7. *F.* DU'BIA *Mirb.* The dubious Beech.

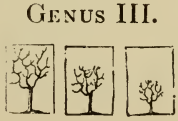
*Identification.* Mém. Mus., 14. t. 26.
*Engravings.* Mém. Mus., 14. t. 26.; and our *fig.* 1705.

*Spec. Char., &c.* Leaves ovate, bluntish, doubly serrate, coriaceous, shining, glabrous, round at the base, on short footstalks. Perianth of the male solitary, turbinate, 5—7-lobed. Anthers 10—16. (*Mirb.*) A South American tree, not introduced.

Probably nothing more than a variety of *F. b*etulòides. The branches are smoother and more elongated; the leaves larger, oval, and not elliptic; and dentate, not crenulate; all which differences may be the result of a more vigorous growth. The dried specimen, in other respects, perfectly resembles that of *F. b*etulòides; and Commerson, who gathered it at the Straits of Magellan, had placed it along with that species, under the name of *B*étula antárctica. As Mirbel had not seen the female flower, he thought it better not to confound it with *F. b*etulòides.

1705. *F.* dùbia

## GENUS III.



CASTA'NEA *Tourn.* THE CHESTNUT. *Lin. Syst.* Monœ'cia Polyándria.

*Identification.* Tourn., 352.; Willd. Sp. Pl., 4. p. 460.; N. Du Ham., 3. p. 65.
*Synonymes.* Fàgus *Lin.* and others; Châtaignier, *Fr.*; Kastanie, *Ger.*; Castagno, *Ital.*; Castano, *Span.*; Castanheiro, *Port.*; Castanietræ, *Swed.* and *Dan.*; Keschton, *Russ.*
*Derivation.* From *Castanea*, a town in Thessaly, or from another town of that name in Pontus.

*Gen. Char. Male flowers* each consisting of a 6-parted calyx, and 10—15 stamens, affixed to its bottom, and extended beyond its mouth. Flowers sessile, and disposed in groups along axillary stalks: each group consists of many flowers, and is involucrated by a bractea and a bracteole.—*Female flowers* consisting each of an ovary taper to the tip, clothed with a calyx, and crowned by its 6—7—8-cleft limb, and bearing as many styles, and having as many cells, with two pendulous ovules in each. The flowers are

disposed 2—3 or more together, within a bell-shaped, and externally bristly involucre. *Fruit* 2—3 nuts, included in a 4-valved involucre. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; serrated or entire, feather-nerved, plaited in the bud. *Flowers* yellowish, conspicuous from the abundance and length of the male catkins. *Fruit* with a hairy calyx like that of the beech.—Trees deciduous, large, spreading; natives of Europe and North America, requiring a good soil to attain a large size.

There is only one European species, which is chiefly valuable as a fruit tree, and as coppice-wood; the timber of full-grown trees being brittle, and of short duration. The foliage is large and ornamental; and, in this and its fruit, it bears a close analogy to the beech.

♀ 1. *C.* VE'SCA *Gærtn.* The eatable, *sweet, or Spanish*, Chestnut.

*Identification.* Gærtn. Sem., 1. p. 181.; Willd. Sp. Pl., 4. p. 460.
*Synonymes.* Fàgus Castànea *Lin. Hort. Cliff.* 447.; Castànea sativa *Mill. Dict.* No. 1.; *C.* vulgàris *Lam. Encyc.* 1. p. 708., *Eng. Bot.* t. 886., *Eng. Fl.* 4. p. 151.
*Derivation.* The term Sweet Chestnut is applied with reference to the fruit, in contradistinction to the fruit of the horsechestnut, which is bitter. It is called the Spanish chestnut, because the best chestnuts for the table, sold in the London markets, are imported from Spain.
*Engravings.* Eng. Bot., t. 886.; N. Du Ham. 3. t. 19.; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1706.

*Spec. Char., &c.* Leaves oblong-lanceolate, acuminate, mucronately serrated; glabrous on each side. (*Willd.*) A stately deciduous tree, rivalling the oak in size and longevity; but, in regard to its timber, comparatively worthless. Asia Minor. Height 50 ft. to 70 ft. Cultivated in the temperate parts of Europe from time immemorial. Flowers yellowish; May. Fruit greenish, enclosing a brown nut; ripe in October.

*Varieties.* These may be arranged in two classes; those which are considered botanical varieties, and those which are cultivated on account of their fruit.

A. *Botanical Varieties.*

♀ C. *v.* 2 *asplenifòlia* Lodd. Cat. 1836. *C.* heterophýlla *Hort.*; *C.* laciniàta *Hort.*; *C.* salicifòlia *Hort.*—The leaves cut into shreds, regularly or irregularly, and sometimes so as to appear like linear-lanceolate leaves; and hence the epithet of salicifòlia.

♀ C. *v.* 3 *cochleàta* Lodd. Cat. 1836.—The leaves cucullate, or hooded, with a diseased stunted appearance.

♀ C. *v.* 4 *glàbra* Lodd. Cat. 1836. *C.* v. fòliis lùcidis *Hort.*—The leaves rather thin, and more shining than those of the species.

♀ C. *v.* 5 *glaúca.* *C.* glaúca *Hort.*—The leaves somewhat glaucous.

♀ C. *v.* 6 *variegàta.* *C.* v. fòliis aúreis *Lodd. Cat.* 1836.—The leaves variegated with yellow, with some streaks of white; and the tree, when of a larger size, makes a splendid appearance in spring, and is admirably adapted for planting among evergreen shrubs, along with the balsam poplar; the colour of which, when the leaves first expand, has all the rich yellow of this variety.

♀ C. *v.* 7 *americàna.* *C.* vésca *Michx. N. Amer. Syl.* iii. p. 9.—This variety has broader leaves than the European chestnut.

B. *Fruit-bearing Varieties.*

There are upwards of 20 sorts cultivated in the London Horticultural Society's Garden, of which Mr. Thompson considers the four following as deserving the preference for ornamental cultivation:—Châtaignier prime, C. Rallue, the Downton Chestnut, and Prolific Chestnut.

Besides these there are the following English sorts:—Devonshire, Lewis's, Lisbon, Masters's Canterbury, Knight's Prolific, and the New Prolific.

The varieties cultivated in France for the table are divided into two kinds, viz. *les châtaignes* and *les marrons*; the former being to the latter what the crab is to the apple. The best marrons sold in Paris are the marrons de Lyons; and the best kinds of the common chestnut are:—La Châtaigne de

Bois; la Châtaigne ordinaire; la Châtaigne pourtalonne; la Châtaigne printanière; la Châtaigne verte du Limousin, which produces very large excellent fruit; and la Châtaigne exalade, the fruit of which is the best of all the common chestnuts for the table. (*Le Bon Jard.*, 1837.)

The sweet chestnut differs essentially from the oak, in its timber not increasing in value as it increases in age. The trunk, in deep free soils, and in situations sheltered rather than exposed, rises erect, and forms a massive column of wood; but, in unsuitable soils, and in elevated exposed situations, and in cold climates, it ramifies at the height of 10 or 12 feet, and the tree assumes the character of a large pollard. The root descends perpendicularly, like that of the oak, but not, as it is alleged, to quite so great a depth. The rate of growth of young trees, in the neighbourhood of London, averages from 2 ft. to 3 ft. a year for the first 10 or 12 years. The tree will attain the height of from 60 ft. to 80 ft. in from 50 to 60 years; before which period its timber is generally in the highest degree of perfection; but the tree will live for several centuries afterwards, and produce abundance of fruit; its timber, in the mean while, beginning to decay at the heart, or become brittle, and fit only for fuel. The wood of the chestnut has the remarkable property of being more durable when it is young than when it is old; the sap or outer wood very soon changing into heart wood; and hence the great value of this tree for

706 C. vésca.

posts, fencing-poles, stakes, trelliswork, hoops, &c. The wood, when green, weighs 68 lb. 9 oz. per cubic foot; and when dry, 41 lb. 2 oz. The wood is easily distinguished from that of the oak, by the transverse fibres being more confused, and much less evident to the naked eye, more especially in a section newly cut; so that, to ascertain whether a plank of timber is oak or chestnut it is only necessary to saw off a thin slice at one of its extremities. The bark especially of young trees, is used for tanning; but it only sells for half the price of that of oak. As a tree for useful plantations, the chestnut is chiefly

valuable as underwood, and for its fruit. As underwood, it is grown in England for hop-poles, fence-wood, and hoops. The poles last as long as those of the ash, and longer; but they do not grow so fast, and they are apt to send out stout side shoots, which, if not checked, either by pruning or by the closeness of the plantation, cause the upper part of the pole to diminish in size too rapidly. The chestnut, like the beech, prefers a deep sandy loam. It will not thrive in stiff tenacious soil; and, in a rich loam, its timber, and even its poles and hoops, are brittle, and good for nothing. The species is propagated by the nut, which may be treated exactly in the same manner as the acorn; and the varieties are perpetuated by grafting.

♈ ♎ 2. *C.* PU'MILA *Willd.* The Dwarf Chestnut, *or Chincapin.*

*Identification.* Willd. Sp. Pl., 4. p. 461.; Michx. Amer., 2. p. 193.
*Synonymes.* *F*ăgus pùmila *Lin. Sp. Pl.* 1416.; *C*astànea pùmila virginiàna, &c., *Pluk. Alm.* 90.; Châtaigner Chincapin, *Fr.*; zwerch Kastanie, or Castanje, *Ger.*
*Engravings.* Wang. Amer., 57. t. 19. f. 44.; Michx. N. Amer. Syl., 3. t. 105.; our *fig.* 1707. from Michaux; and *fig.* 1708. from the tree in the Horticultural Society's Garden.

*Spec. Char., &c.* Leaves oblong, acute, mucronately serrated; covered with white tomentum beneath. (*Willd.*) A deciduous shrub. North America, New Jersey, Delaware, Maryland, South Carolina, Georgia, and Lower Louisiana. Height 8 ft. to 40 ft. Introduced in 1699. Flowers yellow; May. Fruit half the size of the common chestnut.

1707. *C.* pùmila.

1708. *C.* pùmila.

In dry arid soils *C.* pùmila is a shrub not exceeding 6 or 7 feet in height, but in rich soil it is a low tree. The leaves are 3 or 4 inches long, sharply toothed, and similar in form to those of the *C.* v. americàna; from which they are distinguished by their inferior size, and the whiteness of their under surface. The fructification, also, resembles that of *C.* v. americàna in form and arrangement; but the flowers and fruit are only about half as large, and the nut is convex on both sides.

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*Species of Castànea not yet introduced into European Gardens.*

Several species of chestnuts have been discovered in Nepal and Java; some of which were, at first, supposed to belong to the genus *Quércus*, but have since been separated from that genus, and referred to *C*astànea, by Dr. Lindley; and others have been described and figured by Blume, in his splendid work on the plants of Java. Dr. Lindley has given a synoptical list of the Indian *C*astànea in Dr. Wallich's *Pl. As. Rar.*, in which he enumerates eight different species, all of which we shall shortly notice.

*C. índica* Rox. Hort. Beng., p. 68., Lindl. in Wall. Pl. As. Rar., Royle Illust., p. 341., is a native of the mountains of Nepal and Silhet.

C. *Roxbúrghii* *Lindl.* l. c.; Quércus castanicárpa *Rox. Hort. Beng.* p. 68., *Spreng. Syst. Veg.* 3. p. 856.; is a native of Chittagong.

C. *sphærocárpa* Lindl. l. c., Quércus armàta *Rox. MSS*, is a native of the mountains near Silhet.

C. *tribulòides* Lindl. l. c., Royle Illust. p. 341. Quércus tribulòides *Smith* in *Rees's Cycl.* No. 13., *D. Don* in *Prod. Nep.* p. 56., *Wall.* in *Litt.*; *Q. Catángea* Ham. MSS.; *Q.* fèrox *Rox. Hort. Beng.* p. 68.—This species, according to Sir J. E. Smith, was discovered by Dr. Buchanan (Hamilton) in the forests of Upper Nepal, flowering and fruiting at various seasons. Dr. Buchanan supposed it to be an oak; and he describes it as being a tree with smooth branches, and leaves on short footstalks, lanceolate, more or less ovate, entire, taper-pointed, somewhat unequal at the base, about 4 in. long, 1½ in. broad; rigid, and rather coriaceous, with irregular, distant, slightly curved veins; the upper surface polished, and the under one paler, and opaque. The flowers are generally monœcious (though Dr. Buchanan observed one tree with only female flowers), in slender, downy, clustered, axillary or terminal spikes; the male spikes being the more numerous. Stamens about 8, with a dotted central disk. The calyx of the fruit is armed with very numerous, rigid, prominent, sharp thorns, a fourth of an inch or more in length, spreading in every direction.

C. *martabánica* Wall. Pl. As. Rar. t. 107., and our *fig.* 1709., has the leaves lanceolate-oblong, acuminate, quite entire, smooth, on short footstalks, acute

1709. *C.* martabánica.

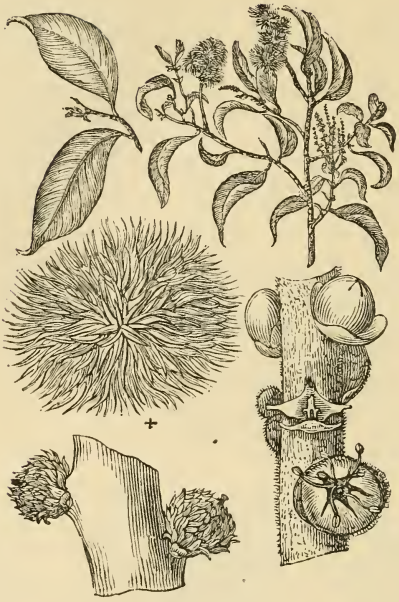
1710 *C. Tungúrrut.*

at the base, silvery beneath. Catkins downy, densely clothed with palmate branchy spines, divaricate. (*Wall.*) A native of Martaban, near Amherst.

C. Tungúrrut *Blume Bjdr. Fl. Jav.* t. 22., and our *fig.* 1710., has the leaves elliptic-oblong, acute, and ash-coloured beneath. The veins and catkins are downy. It is an immense tree, 150 ft. high; and is found in the province of Bantam, at an elevation of from 4000 ft. to 6000 ft. above the level of the sea. The natives call it Tungurrut, or Tungerreh. (*Blume Fl. Jav.*)

*Castànea argéntea* Blume Fl. Jav. t. 21., and our *fig.* 1711., has the leaves oblong-lanceolate, much acuminated, narrowed towards the base, glabrous and silvery beneath. Catkins silky. A tall tree, with a thick trunk; a native of mountains in the west of Java. The wood is used for beams and the axle-trees of waggons; and the acorns are eaten when boiled or roasted. (*Blume.*)

C. *javánica* Blume Fl. Jav. t. 23, 24., and our *fig.* 1712., has the leaves falcate, oblong-lanceolate, sharp at both ends, glabrous, ochreous beneath; the younger ones streaked underneath with dark yellow. A lofty tree, attaining the height of 120 ft., with a trunk 7 ft. in girt. Common in the woods of



1711. *C.* argéntea.

1712. *C.* javánica.

the volcanic mountain of Gedé. Blume mentions two varieties : *C.* j. montàna, *C.* montàna *Blume Bjdr.* 10. p. 526.; and *C.* j. fucéscens. (*Blume.*)

C. *inérmis* Lindl. in Wall. Pl. As. Rar. is a native of Singapore.

C. *chinénsis* Spreng. is mentioned in our *Hortus Britannicus.*

## Genus IV.

CA'RPINUS *L.* The Hornbeam. *Lin. Syst.* Monœ'cia Polyándria.

*Identification.* Lin. Gen., 497.; Juss., 409.; Fl. Br., 1029.; N. Du Ham., 2. p. 197.
*Synonymes.* Carne, Charme, *Fr.*; Haynbuche, or Hainbuche, *Ger.*; Carpino, *Ital.*
*Derivation.* According to some, from *car*, wood, and *pix*, the head, *Celtic;* from the wood being used to make the yokes of oxen: and, according to others, from the Romans using the wood for making a sort of chariot, which they called *carpentum*, and which the Swedes still call *karm.* The French name, Charme, is evidently from the same origin. The English name of Hornbeam alludes to the horny texture of the wood; and the German one of Hainbuche, to the use of the wood for making groves in the geometric style of gardening.

*Gen. Char., &c. Male flowers. Catkin* lateral, sessile, cylindrical. *Bracteas* imbricate. *Flowers* consisting of 12 or more stamens inserted at the base of a bractea. *Anthers* bearded at the tip, 1-celled. — *Female flowers* in lax terminal catkins. *Bracteas* of two kinds, outer and inner; outer bracteas entire, soon falling off; inner bracteas in pairs, each 3-lobed. *Calyx* clothing the ovary to near its tip, and adhering to it; toothed at the tip. *Style* very short. *Stigmas* 2, long, thread-shaped. *Fruit* not attended by the involucre; ovate, compressed, ribbed, clothed except at the base, and tipped with the adnate calyx; woody; including one seed. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; feather-nerved, plaited in the bud. *Flowers* very small, greenish. — Trees, mostly of the middle size; natives of Europe, the Levant, and North America; little valued

either for their timber or ornamental effect; but one species valuable as a garden hedge plant. Common soil, and seeds or layers.

♃ 1. *C. Be'tulus L.* The Birch, *or common*, Hornbeam.

*Identification.* Lin. Sp. Pl., 1416.; Eng. Bot., t. 2032.
*Synonymes.* *Carpinus Matth. Valgr.* 1. p. 131.; *O'strya Bauh. Pin.* 427.; *O'rnus Trag. Hist.* 1109.; *Fagus Bauh. Hist.* 1. p. 2. 146. f.; *Bétulus Lob. Ic.* 2. 190. f.; Carne, Charme, *Fr.*; gemeine Haynbuche, *Ger.*; Carpino bianco, *Ital.*; Hornbeam, Yoke Elm, and in some place Wych hazel.
*Engravings.* Eng. Bot., t. 2032.; N. Du Ham., 2. t. 58.; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1713.

*Spec. Char., &c.* Bracteas of the fruit flat, oblong, serrated, with two lateral lobes. (*Smith.*) A deciduous tree. Britain, and various parts of Europe, in magnitude and general character resembling the common beech. Height 30 ft. to 70 ft. Flowers yellowish; May. Nuts brown; ripe in October or November.

*Varieties.*

♃ C. B. 2 *incìsa* Lodd. Cat. 1836. *C. B. quercifòlia Desf.*; *C. B.* heterophýlla *Hort.* — Leaves deeply cut.

♃ C. B. 3 *variegàta* Lodd. Cat. 1836. — Leaves variegated.

The hornbeam, being extremely patient of the knife, forms excellent hedges. The wood is very tough and horny, and the bark smooth and whitish, or light

1713. *C. Bétulus.*

grey spotted with white; and on old trees it is generally covered with a brownish moss. The wood is white, hard, heavy, tenacious, and very close-grained; but it will not take a good polish. It weighs, when green, 64 lb.; half-dry, 57 lb.; and quite dry, 51 lb. It is very seldom used in construction; partly because it is seldom found of proper dimensions, and partly because, when the tree attains a large size, the wood is apt to become shaky, like that of the chestnut. As fuel, it surpasses the beech in the proportion of 1655 to 1540. For a nurse plant, and for hedges, it is particularly well adapted. It will succeed in any soil not too warm and dry. It is naturally found on cold,

hard, clayey soils, in exposed situations; but it attains its largest dimensions on plains, in loams, or clays that are not too rich. On chalk it will not thrive, in which respect it is directly the reverse of the beech. The seeds of the hornbeam ripen in October; and they are produced freely in England, but seldom in Scotland; the bunches, or cones, as they are called, which contain them, should be gathered by hand, when the nuts are ready to drop out; or they may be left on the tree till they drop; when, though a part of the seed will have fallen out, there will, in all probability, be enough left for future use, the tree being at present but very sparingly propagated in Europe. The nuts separate readily from their envelopes; and, if they are sown immediately, many of them will come up the following spring, and all of them the second spring. If they are preserved in dry sand, or in their husks, and sown the following spring, they will come up a year afterwards; the usual covering is $\frac{3}{4}$ in. The plants may remain in the seed-bed for two years; after which they may be planted into nursery lines, and undergo the usual routine treatment.

♆ 2. *C.* (*B.*) AMERICA'NA *Michx.* The American Hornbeam.

*Identification.* Michx. Amer., 2. p. 201.; Pursh Fl. Amer. Sept., p. 623.
*Synonyme.* *C.* virginiàna *Michx. Arb.* t. 8.
*Engravings.* Dend. Brit., t. 157.; Michx. N. Amer. Syl., 3. t. 108.; and our *fig.* 1714.

*Spec. Char., &c.* Bracteas of the fruit 3-partite; middle division oblique, ovate-lanceolate, 1-toothed on one side. (*Willd.*) A low deciduous tree. Nova Scotia to Florida. Height 12 to 15 feet, but sometimes from 25 ft. to 30 ft. Introduced in 1812. Flowers and fruit like those of the common hornbeam, and produced and ripened about the same time.

The American hornbeam is smaller than that of Europe, but in other respects closely resembles it. Propagated by layers, and sometimes by imported seeds.

1714. *C.* (*B.*) americàna.

1715. *C.* (*B.*) orientàlis.

♆ ⚭ 3. *C.* (*B.*) ORIENTA'LIS *Lam.* The Oriental Hornbeam.

*Identification.* Lam. Encyc., 1. p. 700.; Willd. Sp. Pl., 4. p. 468.; N. Du Ham., 2. p. 199.
*Synonyme.* *C.* duinènsis *Scop. Carn.* t. 60.
*Engravings.* Scop. Carn., t. 60.; Dend. Brit., t. 98.; and our *fig.* 1715.

*Spec. Char., &c.* Bracteas of the fruit ovate, unequal at the base, undivided, somewhat angular, unequally serrated. (*Willd.*) A low deciduous tree or shrub. Asia Minor and the Levant. Height 10 ft. to 12 ft. Introduced in 1739. Flowers and fruit closely resembling those of the common hornbeam, and produced and ripened about the same time.

As it shoots out into numerous widely spreading, horizontal, irregular branches, it cannot be regularly trained up with a straight clear trunk. The leaves are much smaller than those of the common hornbeam, and the branches grow closer together; so that it is even still better adapted for forming a clipped hedge than that species. Very hardy, and easily propagated by layers.

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*Species or Varieties of Cárpinus not yet introduced into European Gardens.*

*Cárpinus* (B.) Carpinízza *Host. Fl. Aust.* 2. p. 626. — Leaves crenately serrated; scales of the strobiles revolute, 3-cleft; the middle segment the longest, and quite entire. A native of the woods of Transylvania. The Transylvanians distinguish this sort from *C. Bétulus*, and call it Carpinizza.

1716. *C. vimínea.*

C. *vimínea* Lindl., Wall. Pl. As. Rar. t. 106., Royle Illust. p. 341., and our *fig.* 1716., has the leaves ovate-lanceolate, much acuminated, doubly serrated; petioles and branchlets glabrous; bracteas fruit-bearing, ovate-oblong, laciniate at the base, somewhat entire at the apex, bluntish. (*Lindl.* in *Wall.*) A native of the mountains of Nepal, in Sirmore and Kamaon; and, according to Royle, on Mussouree, at the height of 6500 ft. above the level of the sea; flowering and fruiting from January to April. A fine tree, very like the common alder.

C. *fagínea* Lindl., Wall. Pl. As. Rar. 2. p. 5., has the leaves ovate-oblong, acute, sharply serrated, and glabrous; petioles and branchlets downy; bracteas fruit-bearing, somewhat rhomboid, with large teeth, acute, reticulated. It is nearly allied to *C.* orientàlis, but differs in the form and margin of the leaf, and in the bracteas. (*Wall. Pl. As. Rar.*, 2. p. 5.)

## Genus V.

O'STRYA *Willd.* The Hop Hornbeam. *Lin. Syst.* Monœ'cia Polyándria.

*Synonymes.* Cárpinus *Lin. and others;* Hopfenbuche, *Ger.*; Ostria, *Ital.*
*Derivation.* From *ostryos*, a scale; in reference to the scaly catkins.

*Gen. Char., &c.* *Male flowers* with the bracteas of the catkins simple, imbricate. *Flowers* of 12 or more stamens, inserted at the base of a bractea. *Filaments* branched, each branch bearing an anther. *Anthers* each of 1 cell. — *Female flowers* with the bracteas small, deciduous. *Involucral scales* in pairs, hairy at the base, a pair growing together at their opposed edges, and constituting an inflated covering to the opening. *Calyx* investing the whole ovary, and extended at the tip into a very short ciliate tube. *Style* short. *Stigmas* 2, long, thread-shaped. *Fruit* a small nut, ovate, bearded at the tip. The fruits of a catkin imbricately disposed into an ovate spike. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; feather-nerved, serrated. *Flowers* small, greenish white. — Trees deciduous, small, in general appearance like the hornbeam; natives of Europe and North America. Propagated by seeds or layers in common soil.

### ☥ 1. *O.* VULGA'RIS *Willd.* The Hop Hornbeam.

*Identification.* Willd. Sp. Pl., 4. p. 469.
*Synonymes.* Cárpinus *O'*strya *Hort. Cliff.* 447. ; *O'*strya carpinifòlia *Scop. Carn.* No. 1191. ; *O'*strya *Bauh. Pin.* 427. ; *O.* itálica, &c., *Michx. Gen.* 223. t. 104. f. 1, 2. ; Carpino nero, *Ital.*
*Engravings.* Michx. Gen., t. 104. f. 1, 2. ; Dend. Brit., t. 143. ; N. Du Ham., 2. t. 59. ; the plates of this tree in Arb. Brit. 1st edit., vol. viii. ; and our *fig.* 1717.

*Spec. Char., &c.* Strobiles ovate, pendulous. Leaves ovate, acute. Buds obtuse. (*Willd.*) A deciduous tree. Italy and the South of Europe. Height 30 ft. to 40 ft. Introduced in 1724. Flowers greenish-white ; May. Fruit small, whitish brown ; ripe in October.

The hop hornbeam, in its general appearance, bark, branches, and foliage, bears a great resemblance to the common hornbeam ; but is at once distin-

1717. *O.* vulgàris.

guished from it by its catkins of female flowers. These consist of blunt scales, or bracteal appendages, which are close, and regularly imbricated, so as to form a cylindrical strobile, very like the catkin of the female hop ; whereas in the common hornbeam the bracteas are open and spreading. The tree has a very handsome appearance when in fruit ; and, in favourable situations, it will attain nearly as large a size as the common hornbeam. It is commonly grafted on the common hornbeam ; but, as the growth of the former is more rapid than that of the latter, unless the graft is made immediately above the collar, the trunk of the scion becomes too large for that of the stock, and the tree is liable to be blown down, or broken over by the wind. Propagating by layers, or by seeds, is therefore a preferable mode.

### ☥ 2. *O.* (? v.) VIRGI'NICA *Willd.* The Virginian Hop Hornbeam.

*Identification.* Willd. Sp. Pl., 4. p. 469. ; Ait. Hort. Kew., 5. p. 302. ; Pursh 2. p. 623.
*Synonymes.* Cárpinus virginiàna *Abb. Ins.* 2. p. 151. ; Cárpinus *O'*strya virginiàna *Michx. Fl. Bor. Amer.* 2. p. 202. ; *C. O'*strya *Michx. N. Amer. Syl.* 3. p. 30. with the exception of the figure, which is that of *O.* vulgàris ; Iron Wood, Lever Wood, *Amer.* ; Bois dur, *Illinois.*
*Engravings.* Abb. Ins., 2. t. 75. ; Pluk. Alm., t. 156. f. 1. ; and our *figs.* 1718, 1719.

*Spec. Char., &c.* Strobiles ovate-oblong, erect. Leaves ovate-oblong, acuminate. Buds acute. (*Willd.*) A deciduous tree. New Brunswick to

Florida. Height 15 ft. to 40 ft. Introduced in 1692. Flowers and fruit as in the preceding species.

The Virginian hop hornbeam, or iron wood, generally forms a tree about 30 ft. high, growing more rapidly than *O.* vulgàris, and differing from that species, according to Willdenow and Pursh, chiefly in the position of its female catkins, which are upright, instead of being pendulous. The tree, according to Michaux, is easily known, in winter, by its smooth greyish bark, which is finely divided, and detached in strips of not more than a line in breadth. In British gardens the tree bears a close resemblance to the European hop hornbeam.

1718. *O.* virgínica.

1719. *O.* virgínica.

## Genus VI.

### CO'RYLUS *L.* The Hazel. *Lin. Syst.* Monœ'cia Polyándria.

*Identification.* Lin. Gen., No. 1074.; N. Du Ham., 4. p. 17.
*Synonymes.* Coudrier, *Fr.*; Haselnuss, *Ger.*; Nocciolo, *Ital.*
*Derivation.* According to some, from *korus*, a helmet; the fruit, with its involucre, appearing as if covered with a bonnet; and, according to others, from the Greek word *karuon*, a nut.

*Gen. Char., &c.* *Male flowers* in cylindrical catkins. *Bracteas* sessile, imbricate. *Perigonal scales* two, cohering at the base, and adnate to the under surface of the bracteal scale. *Stamens* 8, inserted upon the perigonal scales towards their base. *Anthers* bearded at the tip. — *Female flowers* in a bud-like catkin, which is developed into a branchlet. *Bracteal scale* ovate, entire. *Calyx* not obvious, formed of a slightly villous membrane. *Stigmas* 2, long, thread-shaped. *Fruit* an ovate nut. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; entire, feather-veined. *Flowers* whitish in the male, and red in the female, protruded before the leaves. — Low trees and large shrubs, deciduous; natives of Europe and North America; thriving only in good soil, rather dry than moist.

#### ✠ 1. *C. Avella'na L.* The *common* Hazel nut.

*Identification.* Hort. Cliff., 448.; Eng. Bot., t. 723.
*Synonymes.* Coudrier Noisetier, *Fr.*; Haselstrauch, Nussbaum, *Ger.*; Avellano, Nocciolo, *Ital.*; Avellano, *Span.*
*Derivation.* Avellàna is derived from *Avellino*, a city in Naples. Hazel is from the Anglo-Saxon word *hæsil*, which signifies a head-dress. Noisette signifies a small nut; and Nussbaum, a nut tree.
*Engravings.* Blackw., t. 293.; Eng. Bot., t. 723.; and our *fig.* 1720., in which *a* is a sprig in blossom; *b*, one in fruit; *c*, the nut without its calyx; and *d*, the kernel.

*Spec. Char., &c.* Stipules oblong-obtuse. Leaves roundish, cordate, pointed. Involucre of the fruit campanulate, rather spreading, torn at the margin. (*Willd.*) A deciduous shrub or low tree. Europe and the east and west of Asia. Height 20 ft. and upwards; but commonly found in the character of a bush, as undergrowth in woods, especially of the oak. Male flowers greyish; February: female flowers crimson; April. Nut brown; ripe in October.

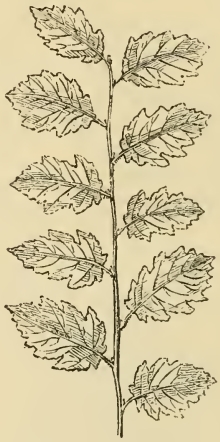
*Varieties.* These are numerous; and they may be divided into two classes; viz., botanical or ornamental varieties, and those cultivated for their fruit.

A. *Botanical Varieties.*

C. A. 1 *sylvéstris* Ait. *C. Avellàna Svensk., Eng. Bot.* t. 723.; *C.* sylvéstris *Bauh. Pin.* 418., and our *fig.* 1720. — The common hazel nut, in a wild state.

C. A. 2 *pùmila. C.* pùmila *Lodd. Cat.* ed. 1836. — Rather dwarfer than the species.

1720. *C. A.* sylvéstris.



1721. *C. A.* heterophýlla.

C. A. 3 *heterophýlla. C.* heterophýlla *Lodd. Cat.* ed. 1836; *C.* laciniàta *Hort.*; *C. urticifòlia Hort.*; the various, or Nettle, leaved Hazel. (Our *fig.* 1721.) — The leaves variously cut, and thickly covered with hairs.

C A. 4 *purpùrea. C.* purpùrea *Lodd. Cat.* ed. 1836; *C.* àtro-purpùrea *Hort.* — The leaves of a dark red or purple. A very striking variety. If grafted standard high on *C. Colúrna* this would make a most singular and beautiful small tree. Grafted on the common hazel, it imparts its colour to the leaves of the stock.

B. *Varieties cultivated for their Fruit.*

The cultivated hazels are of two kinds; viz. nuts and filberts. The former are distinguished by the shortness of their calyxes, or husks, and the latter by their length; but, in consequence of the numerous crosses between these two classes of varieties, the distinction can scarcely now be kept up. The term filbert is supposed, according to some, to be a corruption of full beard, alluding to the husk.

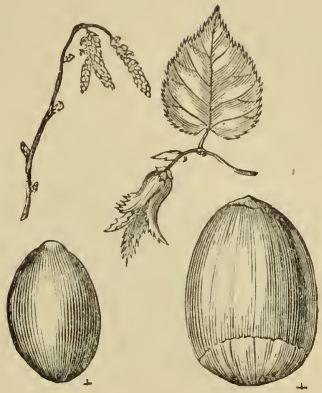
In the *Horticultural Society's Catalogue of Fruits*, 31 sorts of nuts and filberts are enumerated; but the kinds best deserving of culture for their fruit, and also as ornamental shrubs or low trees, are considered by Mr Thompson to be only the five following: —

C. A. 5 *tubulòsa. C.* tubulòsa *Willd. Abbild.* t. 152., and our *fig.* 1723.; *C.* máxima *Mill. Dict.*; *C.* satìva *Bauh.*; *C.* s. rùbra *Ait.*; red Filbert, *Hort. Soc. Cat.* No. 18.; Langbartnuss, or Lambertsnuss, *Ger.*; Noisetier franc à fruit rouge, *Poit. et Turp. Arb. Fruit.* 11. — Long tubular calyx, contracting so much beyond the apex of the fruit, as to prevent its falling out.

C. A. 6 *tubulòsa álba. C.* satìva álba *Ait.*; *C. A.* álba *Lodd. Cat.* ed. 1836; white Filbert, *Hort. Soc. Cat.* No. 19.; weisse Langbartnuss. *Ger.* — Only differs from the preceding variety in having the pellicle of its kernel white.

♣ C. A. 7 *críspa* Encyc. of Plants; the frizzled Filbert, *Pom. Mag.* t. 70., *Hort. Soc. Cat.* No. 16. (Our

1722. *C. A.* críspa.



1723. *C. A.* tubulòsa.

*fig.* 1722.) — A most remarkable variety, and well deserving of cultivation as an ornamental shrub, from the singular appearance it presents in its greatly laciniated calyx.

♣ C. A. 8 *ténuis* Lodd. Cat. ed. 1836. The thin-shelled, or Cosford, Nut, *Pom. Mag.* t. 55., *Hort. Soc. Cat.* No. 12. — Nut with a thin shell, beautifully striated longitudinally.

♣ C. A. 9 *barcelonénsis* Lodd. Cat. ed. 1836. *C.* satìva grándis *Bauh. Pin.* 418.; *C. A.* grándis *Lodd. Cat.* ed. 1836; the Cob Nut, syn. the Barcelona Nut, Downton large Nut, &c., *Hort. Soc. Cat.* No. 8. — Forms a tree of upright growth, with a short, ovate, slightly compressed nut, having a thick and very strong hard shell, well filled by the kernel.

The hazel grows best upon what is called a hazel mould, that is to say, a reddish brown calcareous loam; but it will grow on any soil, from a chalk or gravel, to a cold and wet clay: the rods are durable in proportion to the dryness of the ground on which the hazel grows, and they are particularly good where the bottom is chalk. The situation most favourable is on the sides of hills, for it will not thrive in a soil where water is stagnant: though, like all trees and shrubs that grow in dense masses, it requires a great deal of moisture; and, indeed, it will always keep the ground moist under it by the denseness of its shade. The species is propagated by nuts, and the varieties by layers. The nuts may be dried in the sun, and preserved in a dry loft, covered with straw, or in sand, till the following February; when they may be sown, and treated in the same manner as mast or chestnuts.

### ♃ 2. *C.* COLU'RNA *L.* The *Constantinople* Hazel.

*Identification.* Hort. Cliff., 448.; N. Du Ham., 4. p. 20.
*Synonymes.* *C.* byzantìna *Herm. Lugdb.* 91.; *A*vellàna peregrìna hùmilis *Bauh. Pin.* 418.; *A.* hùmila byzantìna *Clus. Hist.* 1. p. 11.; *C.* arbòrea *Hort.*; le Noisetier de Bizance, *Fr.*; Byzantinische Haselnuss, *Ger.*
*Engravings.* Sob. Mus., 1. t. 27. f. 2.; Dend. Brit., t. 99.; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *figs.* 1725. and 1726.

*Spec. Char., &c.* Stipules lanceolate, acuminate. Leaves roundish ovate, cordate. Involucre of the fruit double, the exterior many-partite, the interior 3-partite; divisions palmate. (*Willd.*) A deciduous tree. Turkey and Asia Minor. Height 50 ft. to 60 ft. Introduced in 1665. Flowers and fruit as in the common hazel, but longer and larger.

*Varieties.*

♃ C. C. 2 *intermèdia.* C. intermèdia *Lodd. Cat.* ed. 1836. — Probably a hybrid between *C. C*olúrna and *C. A*vellàna.

† C. C. 3 *arboréscens* Fisch. (Our *fig.* 1724.)—Differs from the species, chiefly in the calyx of the nut being cut into shreds.

1724. *C. C.* arboréscens.

1725. *C.* Colurna.

The branches spread out nearly horizontally; the leaves are more angular, and softer, than those of the common hazel; and the stipules are linear. The nuts are small, round, almost covered with the calyx, which is double, and

1726. *C.* Colúrna.

deeply laciniated, or fringed, with the points recurved. The tree grows rapidly, and with great vigour, having produced shoots, in the climate of Paris, 6 ft.

long in one year; and sometimes nearly as much in the climate of London. It will grow in almost any soil, but does best in one similar to that adapted for the common hazel. It is easily propagated by seed, grafts, or layers. Grafting on the common hazel is, however, the most general way, as the nut often proves abortive.

### 3. *C.* ROSTRA'TA *Ait.* The beaked, *American, or Cuckold,* Hazel.

*Identification.* Ait. Hort. Kew., 3. p. 364.; Michx. Amer., 2. p. 201.
*Synonymes.* *C.* sylvéstris, &c. *Gron. Virg.* 151.; *C.* cornùta *Hort.*
*Engraving.* Our *fig.* 1727. from a specimen in the British Museum gathered in autumn, and showing the male catkins beginning to develope themselves.

*Spec. Char., &c.* Stipules linear-lanceolate. Leaves ovate-oblong, acuminate. Involucre of the fruit tubular, campanulate, larger than the nut, 2-partite; divisions inciso-dentate. (*Willd.*) A bushy deciduous shrub. Canada to Carolina, on mountains. Height 4 ft. to 5 ft. Introduced in 1745. Flowers and fruit as in the common hazel.

Resembling the common European hazel, but distinguished from it by its fruit being covered with the calyx, which is prolonged in the form of a long very hairy beak; and hence the name.

1727. *C.* rostràta.

### 4. *C.* AMERICA'NA *Michx.* The American Hazel.

*Identification.* Michx. Amer., 2. p. 210.; Willd. Sp. Pl., 4. p. 471.; Lodd. Cat., ed. 1836.
*Synonymes.* *C.* americàna hùmilis *Wang. Amer.* 88. t. 29. f. 63.; Dwarf Cuckold Nut, wild Filbert, *Amer.*
*Engravings.* Wang. Amer., 88. t. 29. f. 63.; and our *fig.* 1728.

1728. *C.* americàna.

*Spec. Char., &c.* Leaves roundish, cordate, acuminate. Involucre of the fruit roundish, campanulate, longer than the nut; limb spreading, dentately serrated. (*Willd.*) A deciduous shrub. Canada to Florida, in low shady woods. Height 4 ft. to 8 ft. Introduced in 1798. Flowers and fruit as in the common hazel.

It differs from *C.* rostràta about as much as the filbert from the European hazel. The calyx is larger than the included nut, the flavour of the kernel of which is said to be very fine.

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*C. férox* Wall. Pl. As. Rar. t. 87., and our *fig.* 1729., in which *a* is the nut with its deeply laciniated calyx; *b*, the nut; *c*, the kernel; and *d*, a longitudinal section of the nut, with the kernel enclosed. The leaves are oblong, and much pointed. Stipules linear-lanceolate. Nut compressed, and half the length of the villous, 2-parted, ragged, and spinous involucre. (*Wall.*) A deciduous tree, 20 ft. high, with a trunk sometimes 2 ft. in circumference, and somewhat glabrous ash-coloured bark.

1729. *C.* férox.

Nepal, on the mountain Sheopur. Flowering in September, and bearing fruit in December and January.

## Order LXXI. GARRYACEÆ.

*Ord. Char.* *Flowers* unisexual; those of the two sexes upon distinct plants. — *Male.* *Flowers* in pendulous catkin-like racemes, within connate bracteas. *Calyx* 4-leaved. *Stamens* 4. — *Female?* *Flowers* in pendulous catkin-like racemes, within connate bracteas. *Calyx* connate with the ovary, 2-toothed. *Ovary* 1-celled. *Styles* 2, setaceous. *Ovules* 2, pendulous, with funiculi as long as themselves. *Fruit* a berried pericarp, not opening, containing 2 seeds. *Embryo* very minute, in the base of a great mass of fleshy albumen. (*G. Don.*)

*Leaves* simple, opposite, exstipulate, evergreen; serrated or entire. — *Flowers* in long pendulous catkins. *Wood* without distinct concentric zones. — Shrubs evergreen; natives of California and Mexico.

### Genus I.

GA'RRYA Doug. The Garrya. *Lin. Syst.* Diœ'cia Tetrándria.

*Identification.* Lindl. in Bot. Reg., t. 1686.
*Derivation.* Named by Mr. Douglas in compliment to *Nicholas Garry, Esq.*, Secretary to the Hudson's Bay Company, to whose kindness and assistance he was much indebted during his travels in North-west America.

*Gen. Char.* See Ord. Char.

Only two species have been introduced, which are very ornamental, grow in loamy soil, and are propagated by layers.

* 1. G. elli'ptica *Doug.* The elliptic-leaved Garrya.

*Identification.* Bot. Reg., t. 1686.
*Engravings.* Bot. Reg., t. 1686.; and our *fig.* 1730.

*Spec. Char., &c.* Branches, when young, pubescent and purplish; when older, smooth and greyish. Leaves opposite, exstipulate, wavy, on short footstalks, oblong-acute, leathery, evergreen; dark green and shining above; hoary beneath, with simple, twisted, interwoven hairs. (*Lindl.*) An evergreen shrub. North Carolina. Height 3 ft. to 4 ft. in America; in England, 8 ft. to 10 ft. Introduced in 1828. Flowers greenish white, or yellowish; November to February.

1730. G. elliptica.

Only the male plant is in the country. When in flower this shrub has a most striking and graceful appearance, from its slender pendulous catkins, many of which are from 8 in. to 1 ft. in length. It was at first grown in peat, but appears to prefer a loamy soil. It is readily increased by layers, and by cuttings in sand under a hand-glass. In British gardens it is about as hardy as the common laurustinus.

* 2. G. laurifo'lia *Hartw.* The Laurel-leaved Garrya.

*Identification.* Bentham, Plantæ Hartwegianæ, p. 50.; Gard. Mag., vol. xvi. p. 637.
*Engraving.* Our *fig.* 1731. from a specimen in the Lambertian herbarium.

*Spec. Char., &c.* Leaves elliptic oblong, very entire, or minutely dentate.

Flowers in both sexes solitary, opposite, sessile; one seated in every bract, and shorter. (*Benth.*) An evergreen shrub, or low tree. Mexico, on mountains. Height 15 ft. to 18 ft., and in some places with a trunk 2 ft. in diameter. Introduced in 1839. Only one plant of this very desirable evergreen has been raised in the Horticultural Society's Garden.

1731. G. *laurifòlia.*

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*Other Species of Gárrya.* — G. Lindlèyi, considered by Mr. Bentham as a variety of G. *laurifòlia*; G. macrophýlla, with round leaves, resembling those of the common wayfaring tree; G. oblónga, with very small leaves, very much resembling the smallest leaves on the Quércus *Ilex*; and G. ovàta, with small round leaves, about the size of those of the common plum, are described in Bentham's *Plantæ Hartwegianæ*, from specimens collected by M. Hartweg in different parts of Mexico.

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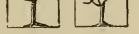
## Order LXXII. *PLATANA'CEÆ.*

*Ord. Char.* *Flowers* unisexual, collected into globose or oblong catkins of different sexes, involucrated or naked.—*Male flower* having the perianth composed of numerous small linear pieces, intermixed with the stamen.—*Female flower* with the scales absent, or intermixed with the flowers; perianth adhering to the ovarium, cup-shaped, or ending in small pilose bristles. *Carpels* 1 or 2, 1-celled, horned at apex, coriaceous. *Seeds* solitary in the cells, pendulous. *Albumen* none. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; palmate. *Flowers* in globular catkins. — Lofty deciduous trees, with widely spreading branches, dense foliage, and bark scaling off in hard irregular patches. Natives of the East of Europe, West of Asia, and North of Africa, and of North America. In Britain, they are chiefly planted for ornament, and they succeed in any free moist soil, in a sheltered situation. They are readily propagated by layers, or even by cuttings, and sometimes by seeds. The cause of the scaling and falling off of the bark, Dr. Lindley states to be the rigidity of its tissue; on account of which it is incapable of stretching as the wood beneath it increases in diameter.

### Genus I.



*PLA'TANUS L.* The Plane Tree. *Lin. Syst.* Monœ'cia Polyándria.

*Identification.* Lin. Gen., 1075.; N. Du Ham., 2. p. 5.; Willd. Sp. Pl., 4. p. 473.

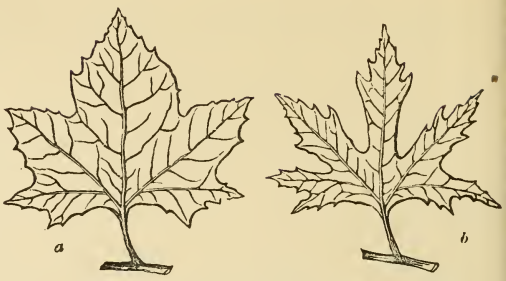
*Synonyme.* Platane, *Fr.*; Platanus, *Ger.*; Platano, *Ital.*

*Derivation.* From *platys*, ample; in allusion to its spreading branches and shady foliage. The name of plane tree is applied, in Scotland, to the *A'cer* Pseùdo-*Plátanus* (see p. 414.); probably because the French, according to Parkinson, first called that the plane tree, from the mistake of Tragus, who fancied, from the broadness of its leaves, that it was the plane tree of the ancients.

*Gen. Char.* See Ord. Char.

There are only two species introduced into Europe; one of which, *P.* orientàlis, is found to be much hardier than *P.* occidentàlis, though the latter

grows more rapidly, attains a larger size, and may be propagated much more readily by cuttings. Both species ripen seeds in Britain, in fine seasons. *P.* occidentàlis is readily known from *P.* orientàlis, in the winter season, by its bark scaling off much less freely, or, in young or middle-sized trees, scarcely at all; and, in the summer season, by its leaves having red petioles, and being but slightly lobed (*fig.* 1732. *a*), instead of being palmate like those of *P.* orientàlis (*fig.* 1732. *b*), which have green petioles, and by its globular catkins being nearly smooth, while those of *P.* orientàlis are rough.




*P.* occidentàlis. 1732. *P.* orientàlis.

### ☨ 1. *P.* ORIENTA'LIS *L.* The Oriental Plane.

*Identification.* Lin. Hort. Cliff., 447.; Willd. Sp. Pl., 4. p. 473.; N. Du Ham., 2. p. 1.
*Synonymes.* *Plátanus* orientàlis vèra *Park. Theatr.* 1427., *Du Ham. Arb.* 2. t. 33.; Platane de l'Orient, *Fr.*; Morgenlandischer Platanus, *Ger.*; Doolb, *Arabic*; Chinar, *Persian.*
*Engravings.* Du Ham. Arb., t. 33.; N. Du Ham., 2. t. 1.; Dend. Brit., t. 101.; the plates of this species in Arb. Brit., 1st edit., vol. viii. and var.; and our *fig.* 1736. In *fig.* 1735. *a* shows the femle catkins transversely cut, so as to display the position of the flowers on the orbicular receptacle; *b* shows a section of the female catkin in seed; *c*, a scale and pistil; *d*, stamen and scale; *e*, the longitudinal section of a seed; and *f*, an entire seed.

*Spec. Char., &c.* Leaves 5-lobed, palmate, wedge-shaped at the base, the divisions lanceolate, sinuated. Stipules nearly entire. (*Willd.*) A large, deciduous tree. The Levant. Height 60 ft. to 80 ft.; with a wide-spreading head. In British gardens before 1548. Flowers greenish yellow; April, May. Fruit brown; ripe in October; persistent great part of the winter.

*Varieties.*

☨ P. *o.* 2 *acerifòlia* Ait. Hort. Kew. iii. p. 364. *P.* o *A'ceris* fòlio *Tourn. Cor.* 41., *Arb.* 2.; *P. acerifòlia Willd. Sp. Pl.* iv. p. 474.; *P.* intermèdia *Hort.*; the Maple-leaved Plane Tree. (The plate of this tree

1735. *P.* o. *acerifòlia.*

in *Arb. Brit.*, 1st edit., vol. viii.; and our *fig.* 1733.) — Leaves cordate, 5-lobed, remotely dentate, truncate at the base. In general appearance, habit of growth, &c., it closely resembles the species.

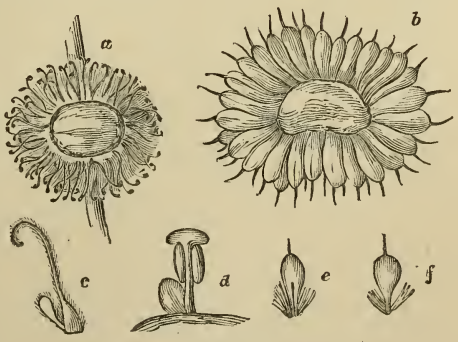
† P. *o.* 3 *hispánica.* *P.* hispánica *Lodd. Cat.* ed. 1836 ; *P.* macrophýlla *Cree* in *Don. Cat.* ; the Spanish Maple. — Leaves rather longer than those of the species, but it is in other respects the same.

† P. *o.* 4 *cuneàta.* *P.* o. undulàta *Ait. Hort. Kew.* iii. p. 364. ; *P.* cuneàta *Willd. Sp. Pl.* iv. p. 473. (The plate of this tree in *Arb. Brit.*,

1734. *P.* o. cuneàta.

1st edit., vol. viii. ; and our *fig.* 1734.) — Leaves 3—5-lobed, dentate, and wedge-shaped at the base ; somewhat glabrous. This is a stunted-looking low tree or bush, seldom seen above 20 ft. in height, with small deeply cut leaves.

The oriental plane is one of the noblest trees of the East, where it grows to the height of 70 ft. and upwards, with widely spreading branches and a massive trunk ; forming altogether a majestic tree. The wood may be compared to that of the *A*cer Pseùdo-*P*látanus ; but very little use is made of it in the West of Europe. Pliny affirms that there is no tree whatsoever that defends us so well from the heat of the sun in summer, or that admits it more kindly in winter. Both properties result from the large size of its leaves : in summer, these present horizontal imbricated masses, which, while they are favourable to the passage of the breeze, yet exclude both the sun and the rain ; while, as the distance at which the branches and twigs of trees are from one another is always proportionate to the size of the leaves, hence the tree in winter is more than usually open to the sun's rays. As an ornamental tree, no one




1735. *P.* orientàlis.

1756. *P. orientalis.*

which attains so large a size has a finer appearance, standing singly, or in small groups, upon a lawn, where there is room to allow its lowest branches, which stretch themselves horizontally to a considerable distance, to bend gracefully towards the ground, and turn up at their extremities. The peculiar characteristic of the tree, indeed, is the combination which it presents of majesty and gracefulness; an expression which is produced by the massive, and yet open and varied character of its head, the bending of its branches, and their feathering to the ground. In this respect, it is greatly superior to the lime tree, which comes nearest to it in the general character of the head; but which forms a much more compact and lumpish mass of foliage in summer, and, in winter, is so crowded with branches and spray, as to prevent, in a great measure, the sun from penetrating through them. The head of the plane tree, during sunshine, often abounds in what painters call flickering lights; the consequence of the branches of the head separating themselves into what may be called horizontal undulating strata, or, as it is called in artistical phraseology, horizontal tufting, easily put in motion by the wind, and through openings in which the rays of the sun penetrate, and strike on the foliage below. The tree, from its mild and gentle expression, its usefulness for shade in summer, and for admitting the sun in winter, is peculiarly adapted for pleasure-grounds, and, where there is room, for planting near houses and buildings. For the latter purpose, it is particularly well adapted even in winter, from the colour of the bark of the trunk, which has a greyish white tint, not unlike the hue of some kinds of freestone. The colour of the foliage, in dry soil, is also of a dull greyish green; which, receiving the light in numerous horizontal tuftings, readily harmonises with the tint of stone walls. It appears, also, not to be much injured by smoke, since there are trees of it of very considerable size in the very heart of London.

A light deep free soil, moist, but not wet at bottom, is that on which the Oriental plane tree thrives best; and the situation should be sheltered, but, at the same time, not shaded or crowded by other trees. It will scarcely grow in strong clays, and on elevated exposed places; nor will it thrive in places where the lime tree does not prosper. The plane tree may be propagated by seeds, layers, or cuttings. The seeds should be gathered in October or November; and, the balls being broken by the hand, or by threshing with a flail, the seeds may be separated from their husks, and cleaned by the usual processes; and either sown immediately, or mixed with sand or fine sandy soil, and preserved in a place secure from frost till February or March. The

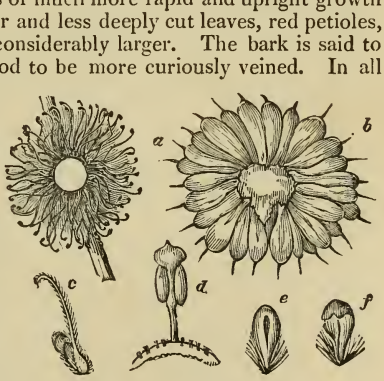
seeds may also be kept in the bans, or catkins, till spring; either by allowing them to hang on the tree, or by gathering them in autumn, and spreading them out in a dry loft. The general practice is to sow the seeds in autumn, or as soon as gathered, or received from the Continent; choosing a moist rich soil, and a shady situation, and covering them as lightly as those of the birch or alder are covered, or beating them in with the back of the spade, and not covering them at all; and protecting the beds with litter of some sort, to exclude the frost. The plants will come up the following spring.

### ♃ 2. *P.* OCCIDENTA'LIS *L.* The Western Plane.

*Identification.* Lin. Hort. Cliff., 78.; Willd. Sp. Pl., 4. 475.; N. Du Ham., 2. p. 5.
*Synonymes.* *P.* occidentàlis seu virginiénsis *Park. Theatr.* 1427., *Du Ham. Arb.* t. 35.; Button-wood, Water Beech, Sycamore, Cotton Tree, *Amer.*; Platane de Virginie, *Fr.*
*Derivation.* Button-wood refers to the smooth round heads of flowers, which resemble the globular buttons formerly in use, and still seen in some military costumes; Sycamore to the resemblance of the leaves to those of that tree; and Cotton Tree to the down detached in the course of the summer from the leaves.
*Engravings.* Dend. Brit., t. 100.; Michx. N. Amer. Syl. 2. t. 63.; the plate of this species in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1737. In *fig.* 1737. *a* represents a transverse section of the female catkin in flower; *b*, the same in fruit; *c*, the female flower and scale; *d*, the stamen and scale; *e*, the longitudinal section of a seed; and *f*, an entire seed.

*Spec. Char., &c.* Leaves 5-angled, obsoletely lobed, dentate, wedge-shaped at the base; downy beneath. (*Willd.*) A large deciduous tree. Atlantic and Western States. Height 70 or 80 feet; with a widely spreading head. Introduced in 1636. Flowers greenish; May. Fruit brownish; ripe in October and November.

The American, or Western, plane is of much more rapid and upright growth than the Oriental plane; with broader and less deeply cut leaves, red petioles, and fruit comparatively smooth, and considerably larger. The bark is said to scale off in larger pieces, and the wood to be more curiously veined. In all other respects, the descriptive particulars of both trees are the same. The rate of growth of *P.* occidentàlis, when placed near water, is so rapid, that in 10 years it will attain the height of 40 ft.; and a tree in the Palace Garden at Lambeth, near a pond, in 20 years had attained the height of 80 ft.; with a trunk 8 ft. in circumference at 3 ft. from the ground; and the diameter of the head 48 ft. This was in 1817. In May, 1837, we had the portrait of this tree taken, which will be found in *Arb. Brit.*, 1st edit., p. 2044., when it was upwards of 100 ft. in height. Uses, culture, soil, &c., as in *P.* orientàlis, with this difference: that cuttings root much more readily; that the tree, to attain a very large size, requires a moister soil, or to be placed near water; that it is less hardy, and also less ornamental, though, from being more readily propagated, it is much more frequently planted.



1737. *P.* occidentàlis.

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## ORDER LXXIII. *BALSAMA'CEÆ.*

*ORD. CHAR.* *Flowers* unisexual, in different catkins on the same plant. — *Male catkins* in an upright raceme. *Stamens* numerous, mixed with scales, on a connate receptacle. — *Female catkins* solitary, below the male ones, globose, on longer stalks. *Ovaria* many, 2-celled, each surrounded by a few scales. *Styles* two. *Fruit* a kind of cone, composed of indurated connected scales, in the cavities of which lie the capsules, which are 2-lobed. *Seeds*

numerous, or solitary by abortion; compressed, membranous, winged. *Albumen* present. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; lobed, with glandular serratures at the edges. *Flowers* in catkins, greenish yellow. *Fruit* in globular capsules, brown.—Trees, natives of Asia and North America, with beautiful foliage, and intense fragrance. Decaying leaves of an intense purple. Common soil, kept somewhat moist; and seeds or layers.

## Genus I.

### LIQUIDA'MBAR *L.* The Liquidambar. *Lin. Syst.* Monœ'cia Polyándria.

*Identification.* Lin. Gen., 1076.; Reich., 1174.; Juss., 410.
*Synonymes.* Altíngia Noronh.; Liquidambar, *Fr.*; Ambarbaum, *Ger.*
*Derivation.* From *liquidus*, liquid, and *ambar*, amber; the plants exuding a liquid gum.

*Gen. Char., &c.* See Ord. Char.

#### ♃ 1. L. Styraci'flua *L.* The Sweet-Gum Liquidambar.

*Identification.* Lin. Sp., 1418.; Michx. Arb., 3. p. 194.; N. Du Ham., 2. p. 42.
*Synonymes.* Liquidámbar árbor *Pluk. Alm.* 224. t. 42. f. 6.; Stŷrax *A'*ceris fòlio *Raii Hist.* 1481. Liquidámbar résineux, Copalme de l'Amérique, Liquidambar Copal, *Fr.*; Fliessender Ambarbaum *Ger.*; Storace liquida, *Ital.*
*Engravings.* Du Ham. Arb., 1. t. 139.; Michx. Arb., 3. t. 4.; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1738.

*Spec. Char., &c.* Leaves palmately lobed, with the sinuses at the base of the veins villose. (*Willd.*) A deciduous tree. North America, middle, western, and southern States. Height 30 ft. to 50 ft. Introduced in 1681. Flowers greenish yellow; March and April. Fruit brown; ripe in October.

The liquidambar generally forms a branching tree, having very much the appearance of a maple. The leaves die off of an intensely deep purplish red, more or less mixed with orange, and with some leaves entirely of that colour. They hang on the trees till the first frosts, when they drop off simultaneously. The rate of growth of this tree, in the climate of London, is from 8 ft. to 10 ft. in 10 years from the seed; and in 20 years it will attain the height of 25 or 30 feet, and flower and ripen fruit. In Britain, the principal use of this tree is as an ornament to lawns and pleasure-grounds; in which it has a most striking appearance, when the leaves are dying off in autumn; and it is also very beautiful throughout the summer, from the dark green and glossy surface of its elegantly shaped leaves. When bruised, the leaves are fragrant at all seasons; but in spring, when they are first unfolding, after a warm shower, the surrounding air is filled with their refreshing odour. The liquidambar has a decided preference for a moist soil, and will only attain a timber-like size in a sheltered situation. In British nurseries, it is generally propagated by layers, which root with tolerable facility, and may be taken off at the end of the first autumn after they have been formed. It is also propagated by seeds imported from America. These are brought over in the catkins, and should not be taken out of them till the time of sowing; because the seeds, like those of the pine and fir tribe, do not keep well when exposed to the air. The round

1738. L. Styraciflua.

prickly catkins which contain the seeds are hard, and not readily broken with the hand; but, by exposure to the sun or to fire heat, they crack and open, and the seeds may then be easily shaken out. They may be sown and treated like seeds of the pine and fir tribe; but, unlike them, they lie a year in the ground before coming up. Seedlings generally attain the height of from 5 in. to 8 in. the first year, with numerous fibrous roots. They may either be transplanted that year or the next, and may afterwards undergo the usual routine culture in nursery lines, till they are wanted for final transplanting.

♃ 2. L. IMBE'RBE *Willd.* The beardless, *or Oriental*, Liquidambar.

*Identification.* Willd. Sp. Pl., 4. p. 475.; Ait. Hort. Kew., 3. p. 365.; N. Du Ham., 2. p. 44.
*Synonymes.* L. orientàlis *Mill. Dict.* No. 2.; ? *P*látanus orientàlis *Pocock. Itin.* 2. t. 89.; L. imbérbis *Smith* in *Rees's Cycl.*
*Engravings.* ? Pocock. Itin., 2. t. 89.; and our *fig.* 1739.

*Spec. Char., &c.* Leaves palmate-lobed, with the sinuses at the base of the veins; smooth. (*Willd.*) A low stunted tree, or large bush, of slow growth, with numerous small branches crowded together into an irregular head. Levant. Height 10 ft. to 20. ft. Introduced in 1759. Flowers ?.

The young shoots are pliant and reddish; the leaves are much like those of the preceding species, but smaller, and more resembling those of the common maple; because they are bluntly notched, while the others are acutely

1739. L. imbérbe.

L. imbérbe. 1740. L. Styracíflua.

so. (See *fig.* 1740., in which *a* is a leaf of L. Styracíflua, and *b* one of L. imbérbe, both to the same scale.) The veins of the leaves, in this species, are naked, while in the other they are hairy at the base of the midrib. The flowers are disposed like those in the preceding species, and the fruit is smaller, and more sparingly furnished with prickly points. The rate of growth, in the climate of London, is slow, being not more than 5 or 6 feet in ten years. It will grow in a soil rather drier than suits the preceding species; though Du Hamel was informed that in its native country it grows in moist soil, by water, like the common willow.

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*L. Altíng*ia *Blume Bjdr.* 10. p. 527. (Fl. Jav., t. 1.; and our *fig.* 1741.) Altíng*ia* excélsa *Noronha* in *Batav. Verhand.* 5. p. 1., *Pers. Syn.* 2. p. 579., *Spreng. Syst. Veg.* 3. p. 888., *Lambert's Genus Pinus*, 1. t. 39, 40.; Lígnum papuànum *Rumph. Herbar. Amboyn.* 2. p. 57.; Alting's Liquidambar.—Leaves ovate-oblong, acuminate, serrated, glabrous. (*Blume.*) A tree, with a spreading head, from 150 ft. to 200 ft. high. It is

1741 L. Altíng*ia*.

found very plentifully in the provinces of Bantam and Buitenzorq in Batavia, at an elevation of from 2000 ft. to 3000 ft.; but in the East of Java it is very rare, if not totally wanting. Noronha first described this tree in the *Act. Soc. Batav.*; but he had not the least suspicion that it belonged to the genus Liquidámbar *Linn.* Sprengel imagined that this tree was the same as our Araucària excélsa; an error which was detected by the description and figure of Blume, as given above.

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## Order LXXIV. *M*YRICA'CEÆ.

*Ord. Char.* *Flowers* disposed in unisexual catkins, each scale having a flower in its axil.—*Male flowers* having the perianth composed of 2 scale-formed pieces, four free stamens.—*Female flowers* with the perianth enlarging after florescence, each composed of 3—6 small scales. *Ovarium* simple, free. *Stigmas* 2, filiform. *Drupe* globose, dryish when ripe, containing a bony valveless nut. *Albumen* none or fleshy. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous or evergreen; entire or pinnatifidly toothed.—Shrubs; natives of Europe, Asia, and North and South America. The genera in British gardens are two, which are thus contradistinguished:—

*M*YRI'CA. Flowers diœcious. Fruit resembling a berry.
COMPTO'N*IA*. Flowers monœcious. Fruit hard, shining.

### Genus I.

### *M*YRI'CA *L.* The Candleberry Myrtle. *Lin Syst.* Diœ'cia Tetrándria.

*Identification.* Lin. Gen., 518.; Eng. Fl., 4. p. 238.; N. Du Ham., 2. p. 189.
*Synonymes.* Galé, *Fr.*; Wachsstrauch, *Ger.*; Mirica, *Ital.*
*Derivation.* From *myrō*, to flow; the plants being found on the banks of rivers.

*Gen. Char., &c.* *Male flowers* in cylindrical sessile catkins. Each flower consists of 4, rarely more, stamens; these are inserted at the base of a bractea. *Bracteas* extending beyond the stamens, loosely imbricated.—*Female flowers* in ovate sessile catkins, with closely imbricate bracteas; one bractea attends 2 flowers. Each flower consists of a calyx of 2—4 very minute scales; an ovary, to which the scales adhere; a short style; and two long thread-shaped stigmas. *Carpel* involucrated by the adherent, more or less fleshy, enlarged calyx, and so more or less resembling a berry. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous or evergreen; more or less serrated; besprinkled with resinous dots, as are the scales of the buds and the surface of the fruit, which yield, when rubbed, an aromatic odour. *Flowers* in axillary catkins, greenish white, expanding early in the year.—Shrubs, natives of Europe and North America. They are of low growth, and generally require a moist peaty soil, in which they are propagated by layers, suckers, or by division of the plant. The American species is sometimes propagated by seeds, which should be sown in autumn, as soon after they are received from America as possible; for, if kept out of the ground till spring, they will not come up till the spring following.

1. *M. GA'LE* L. The *Sweet* Gale Candleberry Myrtle, *Sweet Willow*, or *Dutch Myrtle.*

*Identification.* Lin. Sp. Pl., 1453.; Eng. Flor., 4. p. 239.; Fl. Hibern., p. 257.

*Synonymes.* *Gàle* Raii Syn. 443.; *Elaágnus* *Card. Hist.* 212.; *Mýrtus* brabántica *Ger. Emac.* p. 1414.; *Rhús myrtifòlia* bélgica *Bauh. Pin.* 414.; *R.* sylvéstris áltera *Dalech. Hist.* 110.; *R.* sylvéstris *Park. Theat.* p. 1451.; *Myrica* palústris *Lam.*; Galé, Pimento royal, *Fr.*; gemeine Wachsstrauch, *Ger.*
*Engravings.* Eng. Bot., t. 562.; Fl. Dan., t. 327.; Hayne, t. 200.; Lob. ic., 2. p. 116. f.; N. Du Ham., 2. t. 57.; and our *fig.* 1742.
*The Sexes.* Both are in the arboretum of Messrs. Loddiges.

*Spec. Char., &c.* Leaves lanceolate, serrated; tapering and entire at the base. Scales of the catkins pointed. (*Smith.*) A deciduous aromatic shrub. Europe, from Norway to Lombardy, the North of Asia, and in great part of North America, and always in boggy soil. Height 2 ft. to 4 ft. Flowers brownish green; February and March.

The catkins are numerous and sessile; they are formed in the course of the summer's growth, and remain on during the winter, expanding the following spring, before the leaves. The flower buds are above the leaf buds, at the end of the branches; whence, as soon as the fructification is completed, the end of the branch dies, the leaf buds which are on the sides shoot out, and the stems become compound. The scales of the male catkins are of a red shining brown; and the lower ones of the female catkins have a circlet of red hairs towards the tip. The berries are very small, and covered with resinous dots, like the leaves. The plant is common in bogs. The gale is the badge of the Highland clan Campbell. A variety with larger leaves, &c., is mentioned by Mirbel, and a figure of it given in the *Mém. Mus.*, 14. p. 474. t. 28., of which our *fig.* 1743. is a reduced copy.

1742. *M. Gàle.*

1743. *M. Gàle.*

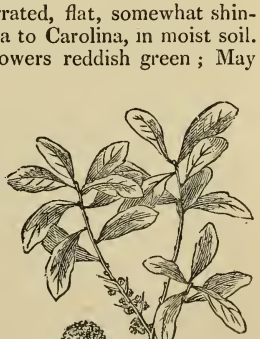
2. *M.* CERI'FERA *L.* The *common* Wax-bearing, *or American*, Candleberry Myrtle.

*Identification.* Lin. Sp., 1453.; Willd. Sp. Pl., 4. p. 745.; Pursh Fl. Amer. Sept., 2. p. 260.
*Synonymes.* *M.* cerífera angustifòlia *Ait. Hort. Kew.* 3. p. 396.; *Mýrtus* brabántica, &c., *Pluk. Alm.* 260. t. 48.; Cérier de la Louisiane, *Fr.*; Albero della cera, *Ital.*
*Engravings.* Pluk. Alm., t. 48. f. 9.; Cat. Car., l. t. 69.
*The Sexes.* Only the male is in the Hackney Arboretum; but, as seeds are annually imported from America, the female is doubtless in the country in many places.

*Spec. Char., &c.* Leaves lanceolate, pointed, serrated, flat, somewhat shining. (*Lam.*) A large evergreen shrub. Canada to Carolina, in moist soil. Height 5 ft. to 12 ft. Introduced in 1699. Flowers reddish green; May or June. Fruit white; ripe in October.

*Variety*

M. *c.* 2 *latifòlia* Ait. *M.* c. mèdia *Michx.*; *M.* carolinénsis *Willd.*, *Pursh Fl. Amer. Sept.* ii. p. 620.; *M.* pennsylvánica *Lam.*, *N. Du Ham.* ii. p. 190. t. 55., and our *fig.* 1744.; *M.* c. sempervìrens *Hort.*; *Mýrtus* brabántica *Cat. Car.* i. t. 13.; Cérier de Pennsylvanie, *Fr.*; Carolinischer Wachsstrauch, *Ger.*; the broad-leaved American Candleberry Myrtle. — This variety has the leaves broader than those of the species, and an arborescent stem. According to the *Nouveau Du Hamel*, it is hardier than *M.* cerífera. Cultivated in England before 1730.


1744. *M.* c latifòlia.

Its general appearance and habits closely resemble those of the European species; the leaves are, however, larger, and more serrated; they are evergreen, and in *M.* c. latifòlia greatly resemble those of the sweet bay. The

male catkins are axillary and sessile; but have not the shining scales of the *Myrìca Gàle*. The fruits are globose drupes, about the bigness of a grain of black pepper; covered with an unctuous substance as white as snow, which gives them the appearance of a kind of sugar plum. Like the *Myrìca Gàle* of Europe, it delights in wet places about swamps or rivers. In France and Germany, it has been cultivated with a view to its producing wax; and it is said to thrive in sandy peat, rather moist, and to produce an abundant crop of berries every year. In Prussia, it has been cultivated in a garden on the banks of the Spree, near Berlin, in lat. 52° 53′; which is nearly 1½ degree farther north than London, but where the mean annual temperature is 2° 9′ higher than London; and wax and candles have been made from the fruit.

1715. M. spathulàta.

M. *spathulàta* Mirb. Mém. Mus. 14. p. 474. t. 28. f. 1.; and our *fig.* 1745. — Leaves spathulate, blunt, quite entire, glabrous. Male catkins sessile, axillary, solitary, shorter than the petioles. A tree, with smooth, cylindrical branches. Leaves 1 in. to 2⅛ in. long, and ½ in. to 1 in. broad. Found in Madagascar by M. Pérodet. Not yet introduced.

## Genus II.

COMPTO'N*IA* Solan. The Comptonia. *Lin. Syst.* Monœ'cia Triándria.

*Identification.* Ait. Hort. Kew., 2 ed., 5. p. 254.; Gærtn. Fruct., 1. p. 58.; N. Du Ham., 2. p. 45.
*Synonymes.* Liquidámbar *Lin. Sp.*; *Myrica Lin. Hort. Cliff.* 456.; *Gàle* Petiv. Mus. 773.; Comptone, *Fr.*; Comptonie, *Ger.*
*Derivation.* Named by Dr. Solander in honour of *Henry Compton*, Bishop of London, the introducer and cultivator of many curious exotic plants, and one of the greatest patrons of botany and gardening of his time.

*Gen. Char.* *Male* catkins lateral, cylindrical, of several flowers. *Bracteas* imbricated. *Flower* of 3 twin stamens, seated towards the base of a bractea; sessile. *Anthers* 2-lobed, opening at the side.—*Female* catkins lateral, ovate, of several flowers. *Bracteas* imbricated. *Flower* consisting of a calyx and pistil. *Calyx* free, flat, 6-parted. *Segments* slender, unequal in length; the longest as long again as the bractea. *Style* short. *Stigmas* 2. *Fruit* 1-celled, ovate, hard, shining, attended by the calyx. *Seed* 1, oval. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, deciduous; lanceolate, pinnatifidly toothed, downy, sprinkled with golden, resinous, transparent particles. *Flowers* whitish.—Shrubs dwarfish; natives of North America; fragrant, from the resinous particles which cover the whole plant. Culture and soil as in *Myrìca*.

1. C. *Asplenifo'lia Solan.* The Asplenium-leaved Comptonia.

*Identification.* Ait. Hort. Kew., 5. p. 2534.; Pursh Fl. Amer. Sept., 2. p. 635.
*Synonymes.* Liquidámbar *asplenifòlium Lin. Sp.* 1418.; L. peregrìnum *Lin. Syst.* 860.; *Myrica Lin. Hort. Cliff.* 456.; *Gàle* mariàna *Pet. Mus.* 773.; *Myrtus* brabánticæ affìnis *Pluk. Phyt.* t. 100. f. 6, 7.; the sweet Fern Bush, *Amer.*
*Engravings.* N. Du Ham., t. 11.; Dend. Brit., t. 166.; and our *fig.* 1746.

*Spec. Char., &c.* Leaves long, linear, alternate, crenately pinnatifid. (*Willd.*) A deciduous shrub. New England to Virginia, in sandy, stony, or slaty woods.

1746. C. asplenifolia.

Height 3 ft. to 4 ft. Introduced in 1714. Flowers, in sessile catkins, brownish; March and April.

The young branches are downy. Leaves alternate, oblong, linear; cut on each side into rounded and numerous lobes, like those of the ceterach; and sprinkled with shining dots, like those of the gales. This shrub is very hardy, but it requires peat earth and a shady situation. Propagated by layers, suckers, or seeds. The first and second methods are the most common, as good seeds can rarely be procured.

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## Order LXXV. *GNETA'CEÆ.*

*Ord. Char.* *Flowers* unisexual, disposed in aments, which are involucrated by opposite or decussate connate scales. — *Male flower* with a 1-leaved perianth, which is transversely cleft at apex, and branched into 1- or many-anthered filaments; cells of anthers separate or combined, each opening by a pore at apex.—*Female flower* composed of 2 connate scales. *Ovarium* 1-celled, perforated at apex. *Ovulum* solitary. *Fruit* indehiscent, drupaceous. *Albumen* fleshy. (*G. Don.*)

*Leaves* simple, opposite, exstipulate, caducous; linear, and scale-like. *Flowers* in terminal catkins. — Shrubs evergreen, from the colour of the bark, with tubular jointed stems and branches. Natives of Europe, Asia, and Africa. Cultivated in sandy soil; and propagated by division.

### Genus I.

### *E'*PHEDRA *L.* The Ephedra. *Lin. Syst.* Diœ'cia Monadélphia.

*Identification.* Lin. Gen., 1136.; N. Du Ham., 3. p. 17.
*Derivation.* From *ephedra*, the Greek name for the *H*ippùris, or Horsetail, which it resembles.

*Gen. Char.* See Ord. Char.

Low shrubs; evergreen, from the colour of the bark of their branches, and in that respect resembling the genera Casuarìna and *E*quisètum. They are natives of the South of Europe, Barbary, and Siberia, on the sea-shore, or in saline or sandy wastes; and they have been but little subjected to cultivation. According to Du Hamel, they bear the shears well, and form beautiful round balls, which may either be made to appear as if lying on the ground, or may be supported on a short stem. The lower sorts, Du Hamel continues, may be clipped to resemble turf; and for that purpose the plant may be valuable, in some parts of Australia and Africa, to form lawns which shall create an allusion to temperate climates. The saving by using such plants as *E'*phedra, which would require little or no watering, instead of a great deal, as the European grasses do in such a climate, would be very considerable.

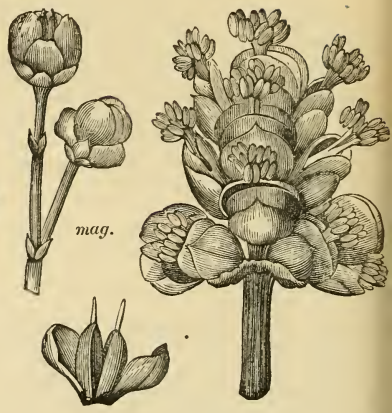
#### ♃ 1. *E.* dista'chya *L.* The two-spiked Ephedra, *Great shrubby Horsetail, or Sea Grape.*

*Identification.* Lin. Sp., 1472.; Ait. Hort. Kew., ed. 1., 3. p. 16.
*Synonymes.* *E'*phedra vulgàris *Rich. Mém. Conif.* p. 26. t. 4. f. 1.; *P*olýgonum marìnum *Tabern. Ic.* 836.; *P. l*amiifòlium, &c., *Bauh. Pin.* 15.; *E'*phedra marítima màjor *Tourn. Inst.* 663.; Raisin de Mer, Ephèdre multiflore, *Fr.*; Zweyahriger Ross Schwanz, *Ger.*
*The Sexes.* Both are figured in Tabernæmontanus, in Clusius, and in Richard.
*Engravings.* Du Ham., t. 1. pl. 92.; Rich. Mém. Conif., t. 4. f. 1.; and our *figs.* 1747. and 1748. of the natural size.

*Spec. Char., &c.* Peduncles opposite. Catkins twin. (*Lin.*) A small ever-

green shrub, with numerous cylindrical wand-like branches, articulated, and furnished at each articulation with two small linear leaves. South of France and

1747. *E.* distàchya.




1748. *E.* distàchya.

Spain, in sandy soils on the sea-shore. Height 3 ft. to 4 ft. Introduced in 1750. Flowers whitish; June and July. Berries red; ripe in August.

As far as we have observed, justice has never been done to this, or any other species of *E'*phedra, in British gardens. The fruit becomes succulent, like that of the mulberry, with a slightly acid and yet sugary and agreeable taste, and might be cultivated for the dessert.

♃ 2. *E.* MONOSTA'CHYA *L.* The one-spiked Ephedra, *or Small shrubby Horsetail.*

749. *E.* monostàchya.

*Identification.* Lin. Sp., 1472.; Ait. Hort. Kew., 3. p. 116.; N. Du Ham., 3. p. 18.
*Synonymes.* *E.* polygonòides *Pall. Ross.*; Ephèdre mineure, Ephèdre de Sibérie, *Fr.*
*The Sexes.* There are male plants at Messrs. Loddiges's.
*Engravings.* Dend. Brit., t. 142.; and our *figs.* 1749. and 1750. of the male plant.

*Spec. Char., &c.* Peduncles many. Catkins solitary. (*Lin.*) An evergreen shrub, much smaller, and hardier than *E.* distàchya. Siberia, near salt springs, and in saline wastes; and, according to Pallas, common in the southern parts of Russia, from the Don and the Volga to the Leira; Persia and India. Height 1 ft. to 2 ft. Introduced in 1772. Flowers whitish; June to July. Berries red; ripe in August and September.

1750. *E.* monostàchya.

The Kergisi use the ashes of the wood of the *E'*phedra for snuff.

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## ORDER LXXVI. *TAXA'CEÆ.*

*ORD CHAR.* *Floral buds* consisting of numerous imbricate scales. *Flowers* diœcious.—*Male flowers* disposed in catkins, each consisting of a scale, and a 2- or many-celled anther, the cells dehiscing longitudinally.—*Female flowers* solitary, naked or bracteate. *Nut*, or seed, solitary, surrounded at its base by a disk, which at length becomes fleshy, and conceals the greater portion or the whole of the nut, and forms with it what may be called a succulent drupe, except in Torrèy*a*, where the nut is not surrounded by any disk, but by dry scarcely increasing scales. The nut or seed is

covered by a crustaceous testa. *Embryo* in the axis of the albumen. *Radicle* at the apex of the seed, having an organic connexion with the albumen. (*G. Don.*)

*Leaves* simple, alternate or distichous, exstipulate, evergreen or deciduous; mostly linear. — Trees or shrubs; natives of Europe, Asia, and North America.

The genera are three, which are thus characterised: —

TA'XUS. Diœcious. Anthers of 4—6 cells. Nut, or seed, surrounded by a fleshy cupular disk.

TORRE'YA. Diœcious. Anther 8-celled. Seed not surrounded by a fleshy disk, but by scales.

SALISBU'RIA. Diœcious. Anthers 2-celled. Seed, or nut, covered by the fleshy persistent disk.

## GENUS I.

### TA'XUS *L.* THE YEW. *Lin. Syst.* Diœ'cia Monadélphia.

*Identification.* Lin. Gen., 532.; Juss., 412.; Fl. Br., 1086.; Tourn., t. 362.; Lam., t. 829.; Gærtn., t. 81.; N. Du Ham., 1. p. 61.; Rich. Mém. Conif., p. 131. t. 2.

*Derivation.* From *toxon*, a bow; being formerly much used in making them: or from *taxis*, arrangement; from the leaves being arranged on the branches like the teeth of a comb: or from *toxicum*, poison; though Pliny says that poison (*toxicum*) was so named from this tree, which was considered poisonous. The derivation of the term Yew is supposed to be from the Celtic word *iw*, sometimes pronounced *if*, and signifying verdure; alluding to the yew being an evergreen: and this will also explain the French name, *if*.

*Gen. Char.* *Male flower* consisting of anthers upon short pedicels, at the top of a column that has imbricate scales at the base. *Anthers* with 4, 5, 6, or rarely more, 1-celled lobes, attached to the connectivum, whose tip is a horizontal shield, lobed at the edge; its lobes corresponding in number and place with those of the anthers, and covering them; the cells opening longitudinally. —*Female flower* an erect ovule, perfect at the tip; with an unobvious annular disk at its base; and, exterior to this, investing imbricate scales. *Fruit* the disk at the base of the ovule, which becomes a fleshy open cup. *Seed* like a nut.

*Leaves* simple, alternate, exstipulate, evergreen; linear, acute, rigid, more or less 2-rowed in direction. *Flowers* whitish. *Fruit* red, pulpy. — Low trees and shrubs, evergreen; natives of Europe, Asia, and North America. Propagated by seeds or layers, in common soil.

#### ♀ 1. *T.* BACCA'TA *L.* The berried, *or common*, Yew.

*Identification.* Lin. Sp. Pl., 1472.; Eng. Bot., t. 746.

*Synonymes.* Táxus, No. 1663., *Hall. Hist.* 2. p. 322.; If, *Fr.*; Ifenbaum, Ihenbaum, or Eihenbaum, *Ger.*; Taxo, *Ital.*; Texo, *Span.*

*The Sexes.* The yew being almost always raised from seed, the male and female plants may be supposed to be nearly equally distributed, both in natural woods and in artificial plantations. Both sexes are sometimes found on the same tree. As far as we have been able to observe, says White of Selborne, the male tree becomes much larger than the female one.

*Engravings.* Eng. Bot., t. 746.; N. Du Ham., 1. t. 19.; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1752.

*Spec. Char., &c.* Leaves 2-ranked, crowded, linear, flat. Receptacle of the barren flowers globular. (*Smith.*) An evergreen tree. Europe generally; in loamy soils and shady situations. Height 20 ft. to 30 ft., rarely 40 ft. Flowers white; March and April. Fruit red; ripe in September.

*Varieties.*

♀ T. *b.* 2 *fastigiàta.* *T.* fastigiàta *Lindl.*; *T.* hibérnica *Hook.*, *Lodd. Cat.* ed. 1836; (the plate of this tree in *Arb. Brit.*, 1st edit., vol. viii.; and our *fig.* 1751.) the upright, or Florence Court, Yew; the Irish Yew. Discovered wild at the former place about 1780.— This is a very distinct variety, readily distinguished from the species

1751. T. b. fastigiàta.

by its upright mode of growth, and deep green leaves, which are not in ranks like those of the common yew, but scattered. All the plants of this variety in cultivation are of the female sex; and the fruit is oblong, and not roundish, as in the common variety.

- T. *b.* 3 *procúmbens.* *T.* procúmbens *Lodd. Cat.* ed. 1836.—Low and somewhat trailing.
- T. *b.* 4 *erécta.* The upright Yew.—A seedling from *T.* b fastigiàta, in which the leaves are 2-ranked as in the common yew, but the branches take an upright direction as in the Irish yew.
- T. *b.* 5 *sparsifòlia* Hort.—Leaves scattered.
- T. *b.* 6 *fòliis variegàtis* Lodd. Cat. ed. 1836.—Leaves variegated with whitish yellow. It is seldom found higher than a large shrub.
- T. *b.* 7 *frúcto lùteo.*—Fruit yellow. The tree does not differ, either in its shape or foliage, from the common yew; but, when covered with its berries, it forms a very beautiful object, especially when contrasted with yew trees covered with berries of the usual coral colour. There are fine trees of this variety at Clontarf Castle, near Dublin.

The yew is of slow growth; but, in favourable situations, it will attain the height of 6 or 8 feet, or more, in 10 years from the seed. In 20 years, it will attain the height of 15 ft., and it will continue growing for 100 years; after which it becomes comparatively stationary, but will live for many centuries. When drawn up by other trees, or by being planted in masses it takes somewhat the character of a fir; and may be found, thus circumstanced, with a clear trunk 30 or 40 feet high. It stoles when cut down under 20 or 30 years of age, but rarely when it is older. In a wild state the yew affords food to birds by its berries; and an excellent shelter to them during severe weather, and at night, by its dense evergreen foliage, but no insects live on it. By man, the tree has been applied to various uses, both in a living state, and when felled and employed as timber. The wood is hard, compact, of a fine and close grain, flexible, elastic, splitting readily, and incorruptible. It is of a

1752. *T. baccàta*

fine orange red, or deep brown; and the sap wood, which does not extend to a great depth, is white, and also very hard. Where the two woods join, there are generally different shades of red, brown, and white: both woods are susceptible of a very high polish. Varennes de Fenilles states that the wood, before it has been seasoned, when cut into thin veneers, and immersed some months in pond water, will take a purple violet colour; probably owing to the presence of alkali in the water. According to this author. the wood of the yew weighs, when green, 80 lb. 9 oz. per cubic foot; and, when dry, 61 lb. 7 oz. It requires a longer time to become perfectly dry than any other wood whatever; and it shrinks so little in drying, as not to lose above $\frac{1}{78}$ part of its bulk. The fineness of its grain is owing to the thinness of its annual layers, 280 of these being sometimes found in a piece not more than 20 in. in diameter. It is universally allowed to be the finest European wood for cabinet-making purposes. The principal use for which the yew was cultivated, before the introduction of gunpowder, was for making bows; but these are now chiefly made of foreign wood. For details respecting making bows of the yew tree, see *Arb. Brit.*, 1st edit., vol. iv. p. 2086. The yew makes excellent hedges for shelter; undergrowth for the protection of game; and. when planted thick on suitable soil, so as to be drawn up with clean and straight trunks, most valuable timber. When a yew hedge is wanted to be of one shade of green, the plants should all be raised from cuttings of the same tree; and, when they are intended to show fruit, in order to rival a holly hedge, only female plants should be chosen or propagated; and the hedge, like holly hedges kept for their fruit, should be cut in with a knife, and never clipped with the shears. Single scattered trees, when intended to be ornamental by their berries, should, of course, always be females; and, in order to determine their sex, they should not be removed to where they are finally to remain till they have flowered. This may, doubtless, be accelerated by ringing a branch on each plant after it has attained 5 or 6 years' growth. The use of the yew tree in ancient topiary gardening, during the seventeenth century, was as extensive, in England and France, as that of the box seems to have been in Italy in the days of Pliny. The practice was rendered fashionable by Evelyn, previously to which the clipping of trees as garden ornaments was chiefly confined to plants of box, juniper, &c., kept by the commercial

gardeners of the day in pots and boxes, and trained for a number of years, till the figure required was complete. Sometimes, as we find by Gibson, Bradley and others, clipped plants of this sort sold as high as five guineas each; and, in all probability, this high price first led Evelyn to the idea of clipping the more hardy yew in situations where it was finally to remain. The narrowness of the leaves of the yew renders it far less disfigured by clipping than even the box; and, as it is much hardier than the juniper, should clipped trees come again into fashion, there can be no doubt that the yew would be preferred to all others. As an avenue tree, the yew may be considered suitable for approaches to cemeteries, mausoleums, or tombs; and, as a single tree, for scattering in churchyards and burial-grounds. The most extraordinary collection of yew trees in England, or perhaps in the world, is at Elvaston Castle, near Derby. (See *Gard. Mag.* for 1841.) The yew will grow on any soil that is somewhat moist; but it thrives best in loams and clays, on rock, and in a shady situation. It is propagated for the most part by seeds; but the varieties, and also the species, when the object is to form a hedge of plants of the same dimensions and colour of leaf, as already mentioned, should be propagated by cuttings or layers from one plant only. The berries are ripe in October, and should be then gathered, carried to the rot-heap, and treated in the same manner as haws. (See p. 382.) If, however, they are sown immediately, enveloped in their pulp, a few of them may come up the following year, and the remainder the second year; but, if the pulp is allowed to dry round the nut, and they are kept in that state till spring, none of them will come up till the third year. Cuttings may be formed of either one or two years' growth, and planted in a shady border, either in the beginning of April or the end of August. The cuttings will be most certain of success if slipped off with a heel, and if the soil consists chiefly of sand. The leaves should be carefully stripped off the lower part of the cutting, which may be from 7 in. to 10 in. in length, and buried to the depth of 5 in. in the soil. Cuttings treated in this manner require two years before they are sufficiently rooted to be removed. In all probability, however, if the points of the shoots were taken and planted in sand under a hand-glass, about midsummer, or before, they would produce roots the same season, and might be transplanted the following spring. Whether plants are raised from seeds or cuttings, they ought to undergo the usual routine of culture in the nursery, till they are 3 or 4 feet high: because, as they are of slow growth, time is gained by this practice; and the yew transplants so readily at any age, that there is no more danger of plants failing when transplanted at the height of 6 or 8 feet, than there is when they are only 6 or 8 inches high. At Elvaston Castle, already mentioned, above a hundred yew trees between 20 ft. and 40 ft. in height have been transplanted; some of them brought from a distance of upwards of thirty miles.

* 2. *T.* (B.) CANADE'NSIS *Willd.* The Canada, *or North American*, Yew.

*Identification.* Willd. Sp. Pl., 4. p. 856.; Pursh Fl. Amer. Sept., 2. p. 647.
*Synonyme.* *T.* b. minor *Mich. Bor. Amer.* 2. p. 245.
*Engraving.* Our *figs.* 2105, 2106. in p. 1110.

*Spec. Char., &c.* Leaves linear, 2-ranked, crowded, revolute. Male flowers globose, always solitary. (*Willd.*) Michaux describes this species as of humbler growth than the European yew, of spreading habit, and with smaller flowers and fruit; and Pursh says that, under the shade of other trees, it does not rise above 2 or 3 feet high. Canada and Maryland; growing only in shady rocky places, and flowering in March and April. It was introduced in 1800; and is apparently only a variety of the common yew. Horticultural Society's Garden.

* 3. *T.* HARRINGTO'NIA Knight. The *Earl of* Harrington's Yew.

*Identification.* Forbes in Pin. Wob., pl. 68.; Gard. Mag., vol. xv., p. 273.
*Synonymes.* ? *Taxus* macrophy'lla *Thunb.*; ? Podocarpus macrophy'llus *Swt.*, *Lamb.* 2d ed. p 843. *Arb. Brit.* 1st ed. p. 2100.

*Engravings.* Pin. Wob., pl. 68.; Gard. Mag., vol. xv. figs. 57. and 58.; and our *figs.* 1755. and 1754.

*Spec. Char., &c.* Leaves distichous, flat, from 1 in. to 1½ in. in length, dark green and shining on the upper surface; of a white glaucous hue beneath, with the exception of the midrib and revolute margins, which are of a bright green; the apex mucronate; footstalks short. Branches round and furrowed. (*Forbes.*) An evergreen tree. Japan. ? Height. Introduced in 1837.

1753. T. Harringtònia.

Readily distinguished from all the well-authenticated species of *T*áxus, by its larger revolute leaves, which are of a silvery glaucous colour on the under side. It is not yet ascertained whether the plant is sufficiently hardy to pass the winter in the open air as a standard, but it promises to be so. Propagated by cuttings, or by grafting on the common yew.

1754.

*Other Species of* T*áxus.* — *T.* Mackàya Pin. Wob. p. 218. is a native of Japan, with very narrow leaves. Introduced in 1838. T. *Inukàja* is a name, in Mr. Knight's *Catalogue*, of a Japan species which has leaves like the leaflets of the sago palm; but very little is known respecting it. *T.* globòsa *Schlecht.* (*G. M.* xv. p. 242.) is a Mexican species, not yet introduced.

## Genus II.

Torre`ya Arnott. The Torreya. *Lin. Syst.* Diœ`cia Monadélphia.

*Identification.* Ann. Nat. Hist., vol. i. p. 130.; Gard. Mag., vol. xvi., p. 658.
*Derivation.* Named by Dr. Arnott in honour of *Dr. Torrey*, one of the authors of the *North American Flora.*
*Synonyme.* Táxus sp. *Nutt.*

*Gen. Char.* Diœcious.—*Male ament* at first subglobose, but at length elongated; the rachis ultimately naked, except at the base, where it is bracteate by quadrifariously imbricated many-flowered scales. *Staminiferous scales* pedicellate, subpeltate, dimidiate, each bearing a 4-celled anther.—*Female ament* ovate, one-flowered, bracteate at the base as in the male; disk none. *Ovulum* erect. *Seed* ovate, bracteate at the base by dry scarcely increasing scales, but naked at the top. *Testa* thick, fleshy, and coriaceous outside, but fibry inside. *Albumen* ruminated. *Embryo* subcylindrical, short. *Cotyledons* connate.

*Leaves* simple, linear, two-rowed, exstipulate, evergreen; rigid, mucronate.—A tree, evergreen, with spreading branches, and the branchlets dis-

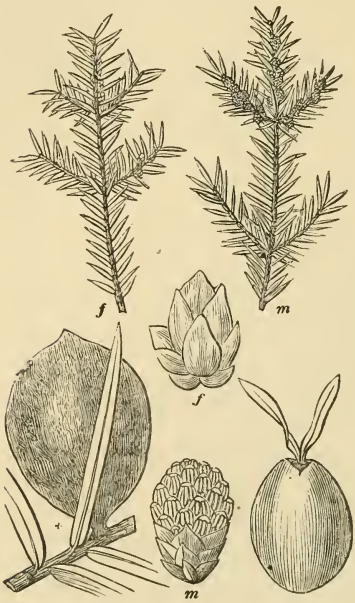
tichous and forked, ending in a pungent mucro. Native of Middle Florida, on calcareous hills.

♀ 1. *T.* TAXIFO'LIA *Arn.* The Yew-leaved Torreya.

*Identification.* Arn. in Annals of Nat. Hist., vol. i. p. 130. ; Gard. Mag., vol. xvi. p. 659.
*Synonymes.* *Táxus montàna Nutt.*, not of Willd. ; Stinking Cedar, *Florida.*
*Engravings.* Hooker's Icones Plantarum, t. 232. and t. 233. ; Gard. Mag., vol. xvi., figs. 74. and 75. ; and our *figs.* 1755. and 1756., in which *m* shows the male, and *f* the female, flowers and branches from male and female plants.

*Spec. Char.* See Gen. Char. An evergreen tree, with the habit and appearance of *A'bies canadénsis.* Florida, on chalky hills, all along the eastern bank of the river Appelach. Height 20 ft. to 40 ft. Introduced in 1840. Propagated by grafting on the common yew.

The wood is dense, and closely grained, and in old trees of a reddish colour, like that of *Juníperus virginiàna.* It is of a strong and peculiar odour, especially when bruised or



1755.

*T. taxifólia.* 1756.

burnt, and hence, in the country where it grows, it is frequently called Stinking Cedar. It makes excellent rails, and is not liable to the attacks of insects. (*Ann. Nat. Hist.*, vol. i. p. 129.) Canterbury Nursery.

## GENUS III.

SALISBU'RIA Smith. THE SALISBURIA. *Lin. Syst.* Monœ'cia Polyándria.

*Identification.* Lin. Trans., 3. p. 330. ; Willd. Sp. Pl., 4. p. 472. ; Horn. Hort. Reg. Haff. 2. p. 903.
*Synonyme.* *Ginkgo* of Kæmpfer, Linnæus, and others
*Derivation.* Named in honour of *R. A. Salisbury*, F.R.S. L.S., &c., a distinguished botanist. Ginkgo is the aboriginal name in Japan.

*Gen. Char.* *Male flowers* in tapering, decurved, bractless catkins, which are borne several from one bud. *Flowers* many in a catkin, each appearing as a stamen only, and consisting of a short filament-like stalk.—*Female flowers* borne from a bud, from which leaves are also produced ; and on peduncles, either single or several on the pedicels of a branched peduncle. *Flowers* seated in a shallow cup, formed of the dilated tip of the peduncle or pedicel,

and consisting of a rather globose calyx, contracted to a point, and then expanded into a narrow limb, and including an ovary. *Calyx* fleshy and persistent, becoming a drupaceous covering to a nut, which is rather egg-shaped, and very slightly compressed. (*G. Don.*)

*Leaves* simple, alternate, stipulate, deciduous; deeply cut or lobed, alike on both surfaces, with long petioles. *Flowers* yellowish. — Tree deciduous, large, native of Japan, quite hardy in the climate of London, and of easy culture in common garden soil.

Remarkable for the singularity of its leaves, which seem to unite Coníferæ with the Corylàceæ. Propagated by cuttings or layers in good loamy soils.

♃ 1. S. ADIANTIFO`LIA *Smith.* The Maiden-hair-leaved Salisburia, *or Ginkgo Tree.*

*Identification.* Trans. Lin. Soc., 3. p. 330.; Willd. Sp. Pl., 4. p. 472.
*Synonymes.* *Gingko*, *Gin-an*, or *Itsjo*, Kæmpf. Amœn., p 811.; *Ginkgo* biloba *Lin. Mant.* p. 313.; Noyer du Japon, Arbre aux quarante E'cus, *Fr.*; Albero adianto, *Ital.*
*The Sexes.* Both sexes are in the Kew Botanic Garden, in the Hackney Arboretum, and in our garden at Bayswater.
*Engravings.* Kæmpf. Amœn., p. 811. f.; Dend. Brit., t. 168.; Jacquin Ueber den Ginkgo, t. i.; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *figs.* 1757. and 1758.

*Spec. Char., &c.* See Gen. Char. A large conical deciduous tree. Japan and China. Height 60 ft. to 80 ft. Introduced in 1754. Flowers yellowish. Only those of the male yet seen in England. Decaying leaves yellow, or yellowish green.

The male catkins, which appear with the leaves in May, on the wood of the preceding year or on old spurs, are sessile, about 1½ in. long, and of a yellowish colour. The female flowers, according to Richard, have

1757. *S. adiantifolia.*

this particularity, that each is in part enclosed in a sort of cup, like the female flowers of Dacrydium. This covering is supposed to be produced by a dilatation of the summit of the peduncle, as may be seen in our figure. The fruit consists of a globular or ovate drupe, about 1 in. in diameter; containing a white nut, or endocarp, somewhat flattened, of a woody tissue, thin, and breaking easily. The fruit has been ripened in the South of France, and young plants raised from it. The tree grows with considerable rapidity in the

climate of London, attaining the height of 10 or 12 feet in 10 years; and, in 40 or 50 years, the height of as many feet. The wood of the ginkgo is said by Kæmpfer to be light, soft, and weak; but Loiseleur Deslongchamps describes it as of a yellowish white, veined, with a fine close grain, and moderately hard. It is easy to work, receives a fine polish, and resembles in its general appearance citron wood. The salisburia, judging from the specimens in the neighbourhood of London, thrives best on a deep sandy loam, perfectly dry at bottom; but it by no means prospers in a situation where the subsoil is wet. The situation should be sheltered, but not so much so as for many exotic trees which have longer leaves and more widely spreading branches. Propagated by layers of two-years-old wood, which generally require two years to be properly rooted; but, on the Continent, it has been found that, by watering the layers freely during the summer, they may be taken off in the autumn of the year in which they were made. Cuttings made in March, of one-year-old wood, slipped off with a heel, root in a mixture of loam and peat earth in the shade; and their growth will be the more certain if they have a little bottom heat. Cuttings of the young wood, taken off before midsummer, and prepared and planted with the leaves on, in sand, under a bell-glass, will, we have no doubt, succeed perfectly.

1758. S. adiantifòlia.

## Order LXXVII. CONI'FERÆ, or PINA'CEÆ.

*Identification.* Lindl. Nat. Syst. of Bot., p. 313.; Richard Mém. Conif., in part.
*Synonymes* Coníferæ *Rich. Mém. Conif.* The Coníferæ, till lately, included the order Taxàceæ, already given, p. 938., which has been separated from it by Dr. Lindley. Conàceæ *Lindl. Key*, 232.
*Affinities.* The Taxàceæ have been separated from this order on the one hand, while, on the other, the Cycadàceæ are considered as approaching very near it.

*Ord. Char.* *Flowers* unisexual; those of the two sexes in distinct catkins which are situated upon one plant in most of the species, and upon two plants in the rest.—*Male catkin* longer than broad. Each *flower* a scale or body, bearing pollen contained within either 2 cells formed within the scale or body, or 3 or more 1-celled cases; in Araucària *Juss.*, in 2-celled cases, exterior to, but united with, the scale or body: a part of the scale or body is free above the cells or cases containing the pollen.—*Female catkin* more or less conical, cylindrical, or round, in figure; composed of many, several, or few flowers, each, in most species, subtended by a bractea. The catkin, in the state of fruit, is rendered a strobile of much the same figure. Each *flower* is constituted of 1—3 ovules, borne from an ovary that resembles a scale, and is in some instances connate with the bractea that subtends it. *Ovules* regarded as receiving impregnation from direct contact of the pollen with the foramen of the ovule. *Bracteas* imbricated. *Carpels*, which are the ovaries in an enlarged and ripened state, imbricated. *Seed* having in many species a membranous wing. *Embryo* included within a fleshy oily albumen, and having from 2 to many opposite cotyledons, and the radicle being next the tip of the seed, and having an organic connexion with the albumen. Brown has noticed a very general tendency in some species of Pinus and Abies to produce several embryos in a seed.

*Leaves* simple, alternate, exstipulate, evergreen, rarely deciduous; needle-shaped, scale-like, or lanceolate; in some species disposed in groups, with a membranous sheath about the base of the group, at least in most of these; in some in rows; in some oppositely in pairs, decussate in direction; imbricately in several. *Flowers* in catkins; April and May. *Fruit* a cone;

ripe in the autumn of the second year.—Trees almost all evergreen, the wood abounding in resin,

The hardy genera in British gardens are arranged as under:—

### Tribe I. *A*BIE'TINÆ.

Buds scaly. Catkins of both sexes many flowered. Leaves scattered, or in groups. Tips of ovules pointing to the axis of the catkins, except in Cunninghàm*ia*. Nadelholz and Tangelholz, *Ger.*

*P*I'NUS. Male catkins aggregate. Pollen contained in 2 cells. Ovules 2. Carpels thickened at tips. Leaves not solitary.

*A*'BIES. All as in *P*ìnus, but the cones are pendulous, and the leaves are solitary.

*P*I'CEA. This differs from *A*'bies in the cones being erect, and from *P*ìnus in the carpels not being thickened at the tips; and from both, in the leaves being in 2 ranks.

*L*A'RIX. Differs from *A*'bies in the leaves being deciduous, and in groups; and in the cones being erect.

*C*E'DRUS. Differs from *L*àrix in the leaves being evergreen. Anthers crested.

CUNNINGHA'M*IA*. Male catkins grouped. Pollen contained in 3 cases. Ovules 3. Leaves solitary and serrulated.

*DA'MMARA*. Male catkins solitary. Pollen contained in 5 to 24 cases. Ovules 2. Leaves broad.

ARAUCA'RIA. Catkins diœcious. Pollen contained in 10 to 20 cases. Ovules solitary, combined with the scale.

### Tribe II. *C*UPRE'SSINÆ.

Buds not scaly. Catkins of both sexes few-flowered. Ovules pointing from the axis of the catkin. Leaves evergreen, except in Taxòdium.

*T*HU'JA. Catkins terminal, solitary. Pollen in 4 cases. Ovules 2. Leaves scale-like, imbricate.

CA'LLITRIS. Catkins terminal, solitary. Pollen in 2 to 5 cases. Ovules 3 or more. Leaves scale-like, opposite or whorled.

*C*UPRE'SSUS. Catkins solitary. Pollen in 4 cases. Ovules 8 or more. Leaves imbricate.

TAXO'DIUM. Catkins disposed in compound spikes; female ones 2 or 3 together. Pollen in 5 cases. Ovules 2. Leaves linear, in 2 ranks, deciduous.

*J*UNI'PERUS. Male catkins terminal; female ones axillary, few. Pollen in 3 to 6 cases. Ovule one. Fruit pulpy. Leaves opposite or ternate, rigid.

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## Tribe I. *A*BIE'TINÆ.

The *A*biétinæ are almost all trees of lofty stature, pyramidal in form, and regularly furnished with verticillate frond-like branches, from the base to the summit of the trunk. These branches, unlike those of every other kind of tree, die off as the tree grows old, without ever attaining a timber-like size; so that, in a physiological point of view, they may be considered as rather like immense leaves than branches; and this circumstance, as well as others, seems to connect the pines and firs with the palms. Almost all the species are evergreen, and have linear needle-like leaves; whence the German names of *nadelholz* and *tangelholz*. The wood is chiefly composed of parallel fibres, arranged in a manner somewhat intermediate between that of dicotyledonous and monocotyledonous trees; and, in consequence of these fibres not being

very close, the wood is elastic and resilient. Being resinous, it is also, in general, very durable, and of great combustibility. The fruit of the *A*biétinæ are all cones, which vary somewhat in form, though they are in general, as the word implies, conical; and they differ in size, from that of *A*bies canadénsis, which is about half an inch in length, to that of *P*ìnus Lambert*iàna*, which has been found 2 ft. long. The largest seeds are those of the *P*ìnus *P*ínea; and the smallest those of some species of *A*bies. In germinating, the seed first swells and bursts at the upper or narrow end, whence the radicle proceeds and turns downwards into the soil; while, soon after, the lower, or thick, part of the seed opens, and the leaves are developed, and rise above the surface of the ground. The rate of growth of the *A*biétinæ is, in general, rapid; and the duration of the tree, compared with that of the oak, short. The most rapid-growing species in the climate of London is the *P*ìnus Larício, which will attain the height of 20 ft. in 10 years; and the species of this section generally reach maturity, in the climate of Britain, in from 60 to 100 years. Most of the European species bear cones at about 20 years' growth, or before; the spruce fir, on dry chalky soils, in less than half that period. The pinaster arrives at maturity sooner than any other European pine, but seldom lasts longer than from 40 to 50 years. The European species of slowest growth, and greatest duration, is the *P. Cémbra*, which seldom attains more than 30 or 40 feet in height, but which lives for several centuries. The two species which in Europe are most valuable for their timber are, the *P.* sylvéstris and the *L*àrix europæ'a. The grandest and most ornamental species is, unquestionably, the *C*èdrus Libàni; and the most elegant and graceful the *A*bies canadénsis. The species which produce the greatest quantity of timber in the shortest time, in the climate of Britain, are, the Scotch pine and the larch: but, in favourable situations, both in Germany and Switzerland, these species are exceeded in this respect by the silver fir; in Spain by the pinaster; and in North America by the Weymouth pine. The greater number of the species of *A*biétinæ will live in the open air in the climate of London; but some few require to be protected there from the frost. The debris of granitic rock may be considered as the universal soil of the pine and fir tribe, and a dry subsoil an essential condition for their prosperity; but they will grow on all soils whatever, that are not surcharged with water. The roots of all the *A*biétinæ run immediately under the surface, and hence do not require a deep soil; and, as their needle-like leaves do not carry off much moisture by evaporation, the soil in which the *A*biétinæ will grow to a large size may be drier than that required for any other kind of tree. Nevertheless, a soil somewhat loamy, and a cool subsoil, are necessary to bring the timber of the pine to its greatest degree of perfection; and various species, particularly those belonging to the genus *P*ícea, require a loam rather rich than poor, and a situation low rather than elevated. *A*bies commùnis grows naturally on moist soil; often on peat bogs. The only mode of propagating the pine and fir tribe on a large scale is by seeds; but all the species will succeed by layers, by inarching on closely allied kinds, and by herbaceous grafting; and many, if not all, may also be propagated by cuttings. The species which strike by cuttings most readily are those belonging to the genera *P*ícea, *A*bies, *L*àrix, and *C*èdrus. The cuttings may be taken from the lateral branches, when the current year's shoots are beginning to ripen, and prepared like those of Cape heaths; they should then be planted in sand, and covered with a glass. This being generally done in August or September, the cutting should be kept in a frame, from which frost is excluded, throughout the winter; and the greater part of them will send up shoots the following May or June, and may be transplanted the succeeding autumn. The operation of herbaceous grafting is performed in the cleft manner; the slit being made a little deeper than that part of the scion which is to be inserted in it. The time of performing the operation is when the leading shoot of the stock has attained the length of from 8 in. to 12 in., and will break over (without tearing the bark) like a piece of glass, or the most succulent part of a shoot of asparagus fit to gather for the table.

The time during which any given species has its leading shoot in a fit state for being broken over in this manner is not more than 15 days; and, as the scions from the species to be grafted are equally tender with the stock, they will not remain longer in a state fit for the operation than about the same period. The scion is always inserted in the leading shoot; the greater number of the side shoots are either removed altogether, or shortened; and the young shoots produced from the stocks during the season are pinched off with the finger and thumb at about half their length. In the European *A*biétinæ, the seeds begin to drop from the cones, which remain on the trees, generally in March; for which reason February is a good month to collect them. The cones of *P*ìnus sylvéstris, and of the allied sorts, soon open of themselves, after they have been gathered from the tree, and spread out in the sun; but the cones of *P. P*ináster, *P. P*ínea, and the allied sorts, though treated in the same manner, will not open their scales for several months, or even a year. The cones of *C*èdrus Libàni will not open till they have been three years or upwards on the trees; and, when they are gathered, it is almost always necessary to steep them in water for 24 hours, and afterwards to expose them before a fire, or to the sun. In Scotland, France, and Germany, the seeds of the *P*ìnus sylvéstris and of the *L*àrix europæ'a are very commonly separated from the cones by kilndrying, and afterwards thrashing them: but, as the heat of the kiln is sometimes carried so far as to destroy the vital principle, it is considered safer to steep the cones before drying, in which case less fire is requisite; or to split them by inserting an iron triangular-pointed instrument, not unlike a shoemaker's awl, into the axis of the cone, at its broad end. The cones are also sometimes broken by passing them through a bone-mill, or between two cylinders; or by putting them into a bark-mill. The cones of the silver and the balm of Gilead firs, and also of the *P*ìnus *S*tròbus, open of themselves in a dry room, and give out their seeds with less trouble than those of any other species. The most general time for sowing the seeds of the *A*biétinæ is in the end of March or in April. The ground ought to be in good heart, light, and sandy rather than loamy, and prepared as finely as possible. The seeds may be most conveniently sown in beds; and, after being gently beaten down with the back of a spade or a slight roller, they should be covered with light soil or leaf mould to the depth of a sixteenth, an eighth, or at most a quarter, of an inch, according to the size of the seeds; and immediately afterwards covered with branches of trees or shrubs, fronds of fern, wickerwork hurdles, or netting, to shade the soil from the sun, and protect the seeds from birds. If, indeed, the seeds are gently patted in with the back of the spade, and the beds kept shaded, and of a uniform gentle moisture, no covering at all is necessary. When rare kinds are sown in pots, if the surface of the soil is kept 1 in. below the rim of the pot, the pot may be covered with a pane of glass, and the seeds will come up with certainty and vigour. Traps ought to be set for mice, which are great devourers of the seeds of the *A*biétinæ. In very dry weather the beds should be watered in the evenings; but in this case it becomes doubly necessary to shade them in the daytime; because in proportion to the rapidity of the germination of the seeds are they liable to be scorched by the sun. The precaution of shading is much less necessary in Scotland, than in England, or on the Continent. The pine and fir tribe does not, in general, succeed so well when transplanted as the broad-leaved trees; for which reason, most of the sorts planted for ornament, such as the cedar, stone pine, Weymouth pine, Siberian pine, &c., should always be kept by the nurserymen in pots. The Scotch pine, the larch, the spruce, the silver and balm of Gilead firs, the Corsican pine, and the Weymouth pine, may be transplanted into nursery lines, from the seed-bed, in the second year; and, after remaining one year in these lines, they may be removed to where they are finally to remain. Very few species can be kept with advantage for a longer period in the nursery than 3 years; viz. two in the seed-bed, and one transplanted. Very little pruning is necessary for the pine and fir tribe, whether they are grown singly or in scattered groups for

ornament, or in masses for useful purposes in plantations. In the former case, to remove any of the branches would destroy the object in view; and in the latter, if the plantation is of suitable thickness, the lower branches begin to die off of themselves, after the trees have acquired a certain age and growth, and all that is necessary is to assist nature, by cutting off the branches close to the trunk, the moment they begin to show indications of decay.

## Genus I.

*PINUS L.* The Pine. *Lin. Syst.* Monœ`cia Monadélphia.

*Identification.* Lin. Gen., 499; Fl. Br., 1031.; Lamb. Pin., 2d ed., l. t. 1.
*Synonymes.* Le pin, *Fr.*; Fichte, Pynbaum, or Kiefer, *Ger.*; Pynboom, *Dutch*; Pino, *Ital.* and *Span.*; Pinu, *Anglo-Saxon;* Pinnua, *Welsh;* Peigne, *Erse.*
*Derivation.* The word Pinus comes from the Greek *pinos*, used by Theophrastus to designate the pine tree. *Pinos* has for its root *pion*, which signifies fat; because the trees of this genus furnish pitch and tar. Others derive the word Pinus from *pin*, or *pyn*, a mountain or rock, *Celtic;* in allusion to the habitat of the tree; the British towns Pen-ryn, Pen-rith, and Pen-maen; and the Spanish ones, Penna-flor, Penna-fiel, &c., being so called from being built on hills, or rocks.

*Gen. Char., &c.* *Male flowers* in grouped catkins. *Pollen* contained in 2 cells, formed in the scale, that open lengthwise. *Female flowers* with 2 ovules. *Strobile* in most species ovately conical. *Carpels* or outer scales thickened at the tip, exceeding the bracteas or their outer scales in length, and concealing them; persistent.

*Leaves* simple, alternate, exstipulate, sheathed, evergreen; linear, rigid, in groups of 2, 3, or 5; each group arising out of a scaly sheath. *Flowers,* males whitish yellow, powdery. *Fruit* a cone.

Evergreen trees, generally of large size, natives of Europe, Asia, and America, and in an eminent degree both useful and ornamental. They flower, in Britain, in May and June, and generally ripen their cones in the autumn of the following year. The species may be arranged either according to their cones or their leaves; and we have adopted the latter feature as the foundation of our sections, because it is applicable to trees in every stage of their growth; and because many of the species in London gardens have not yet borne cones.

The following is our arrangement of the species in British gardens:—

§ i. *Bìnæ.*—Leaves 2 in a sheath.

A. *Natives of Europe.*

1. sylvéstris.
2. Pumílio.
3. Larício.
4. (L.) austrìaca.
5. (L.) Pallas*iàna.*
6. (L.) pyrenàica.
7. *P*ináster.
8. *P*ínea.
9. halepénsis.
10. brùtia.

B. *Natives of North America.*

11. Banks*iàna.*
12. ìnops.
13. púngens.
14. resinòsa.
15. mìtis.
16. contórta.
17. turbinàta.

§ ii. *Ternàtæ.*—Leaves 3 in a sheath.

A. *Natives of North America.*

18. *T*æ`da.
19. rígida.
20. Fràser*i.*
21. serótina.
22. ponderòsa
23. Sabini*àna.*
24. Coúlter*i.*
25. austràlis.
26. insígnis.
27. californiàna.
28. muricàta.
29. tuberculàta.
30. radiàta

B. *Natives of Mexico.*

31. *Tecòte.*
32. pátula.
33. Llave*àna.*

C. *Natives of the Canaries, India, China, and Australia.*

34. canariénsis.
35. longifòlia.
36. Gerard*iàna*.
37. sinénsis.
38. timoriénsis.

§ iii. *Quìnæ.*—Leaves 5 in a sheath.

A. *Cones with the Scales more or less thickened at the Apex.*

a. *Natives of Mexico or Guatemala.*

* *Cones long.*

39. Hartwè*gii*.
40. Devon*iàna*.
41. Russell*iàna*.
42. Montezùmæ.
43. macrophýlla.
44. Pseùdo-Stròbus.
45. filifòlia.

** *Cones short.*

46. leiophýlla.
47. oöcárpa.
48. apulcénsis.

b. *Natives of the West Indies.*

49. occidentàlis.

B. *Cones with the Scales not thickened at the Apex.*

a. *Natives of Europe and Siberia.*

50. *Cémbra.*

b. *Natives of North America.*

51 Stròbus.
52. Lambert*iàna*.
53. montícola.

c. *Natives of Nepal and Mexico.*

54. excélsa.
55. *Ayacahuìte.*

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## § i. *Bìnæ.* — *Leaves generally 2 in a sheath.*

A. *Natives of Europe.*

♀ 1. *P.* SYLVE'STRIS *L.* The wood, *or Scotch,* Pine, *or Scotch Fir.*

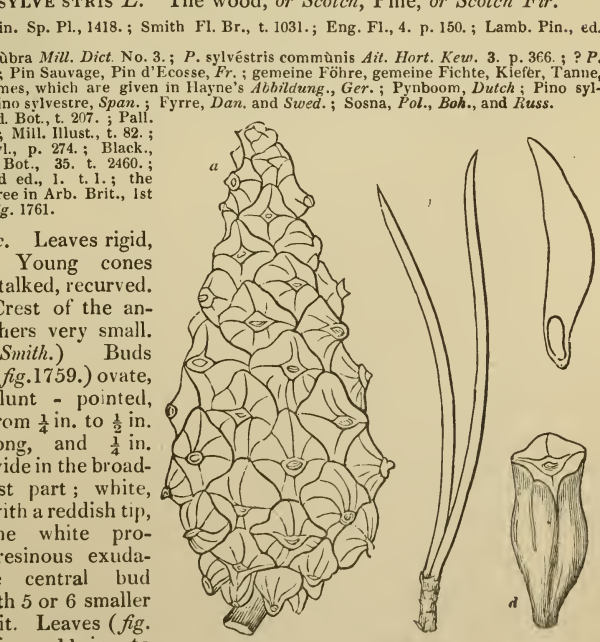
*Identification.* Lin. Sp. Pl., 1418.; Smith Fl. Br., t. 1031.; Eng. Fl., 4. p. 150.; Lamb. Pin., ed. 8vo, 1. t. 1.

*Synonymes.* *P.* rùbra *Mill. Dict.* No. 3.; *P.* sylvéstris commùnis *Ait. Hort. Kew.* 3. p. 366.; ? *P.* Escarèn*a* Risso; Pin Sauvage, Pin d'Ecosse, *Fr.*; gemeine Föhre, gemeine Fichte, Kiefer, Tanne, and 55 other names, which are given in Hayne's *Abbildung., Ger.*; Pynboom, *Dutch*; Pino sylvatico, *Ital.*; Pino sylvestre, *Span.*; Fyrre, *Dan.* and *Swed.*; Sosna, *Pol.*, *Boh.*, and *Russ.*

*Engravings.* Med. Bot., t. 207.; Pall. Ross., t. 2. f. 1.; Mill. Illust., t. 82.; Hunt. Evel. Syl., p. 274.; Black., t. 490.; Eng. Bot., 35. t. 2460.; Lamb. Pin., 2d ed., 1. t. 1.; the plates of this tree in Arb. Brit., 1st edit.; and our *fig.* 1761.

*Spec. Char., &c.* Leaves rigid, in pairs. Young cones stalked, recurved. Crest of the anthers very small. (*Smith.*) Buds (*fig.* 1759.) ovate, blunt-pointed, from ¼ in. to ½ in. long, and ¼ in. wide in the broadest part; white, with a reddish tip, the white produced by resinous exudation. The central bud generally with 5 or 6 smaller ones round it. Leaves (*fig.* 1760. *b*) from 1½ in. to

1759.




1760. *P.* sylvéstris.

$2\frac{3}{4}$ in. long; somewhat waved and twisted; slightly concave on the upper, and convex on the under, surface; light bluish green, finely serrulated on the edges; the sheath lacerated and slightly ringed. Cones (*fig.* 1760. *a*) from 2 in. to 3 in. long, and from 1 in. to $1\frac{1}{4}$ in. broad. Scales (*fig.* 1760. *d*) from 1 in. to $1\frac{1}{4}$ in. long, terminating in an irregular four-sided projecting point, often recurved. Seeds, with the wing (*c*), from 1 in. to $1\frac{1}{4}$ in. long; without the wing, from $\frac{2}{16}$ in. to $\frac{3}{16}$ in. long; dark-coloured. Cotyledons 5 to 7. A tall, straight, hardy, long-lived tree, from 60 ft. to 100 ft. high; Europe generally, but not of America; flowering in May and June, and ripening its cones about 18 months afterwards; the most valuable, for its timber, of all the European species of *P*ìnus.

*Varieties.* Like all trees which have an extensive geographical range, and grow on almost every kind of soil, and at great elevations as well as in plains, the varieties and variations of the Scotch pine are exceedingly numerous; both as respects the exterior appearance of the tree, and the quality of its timber and resinous products. On poor soils, at great elevations, it becomes a diminutive shrub: and in low situations, where it is a lofty timber tree, the wood on some light sandy soils is white, almost without resin, and of little duration; while on other soils, of a colder and more substantial nature, it is red, heavy, and of great durability. It appears, also, that the same situation will produce both white-wooded and red-wooded trees; and seeds from red-wooded trees will, it is said, in some instances, produce others the wood of which is red.

a. *Timber Trees.*

♀ P. *s.* 1 *vulgàris.* The common wild Pine. (*fig.* 1761., to our usual scale.)—Thus described by Don of Forfar. Branches forming a pyramidal head; leaves marginated, of a dark green colour, and but little glaucous underneath; cones considerably elongated, and tapering to a point, and the bark of the trunk very rugged. "This variety seems to be but short-lived, becoming soon stunted in its appearance, and it is altogether a very inferior tree to either variety 2, or variety 3." (*Cal. Mem.*, i. p. 123.)

1761. *P. s.* vulgàris.

♀ P. *s.* 2 *horizontàlis. P.* horizontàlis *Don of Forfar; P.* sylvéstris var. montàna *Sang, Plant. Cal.* p. 65.; the Speyside Pine, *Hort. Soc.*; the Highland Pine, *Grigor* in *Gard. Mag.* viii. p. 10.; the horizontal-branched wild Pine, *Laws.*; the red-wooded Scotch Pine, *Sang*; ? *P.* rùbra *Mill. Dict.* and *N. Du Ham.* — This variety is described by Don of Forfar as being "strongly marked and permanent." It "is distinguished from the former by the disposition of its branches, which are remarkable for their horizontal direction, and for a tendency to bend downwards close by the trunk. The leaves are broader than those of the first variety, and serrulated, and not marginated. They are distinguishable at a distance by their much lighter and beautiful glaucous colour. The bark of the trunk is not so rugged as in the preceding variety. Its cones are thicker, not so much pointed, and smoother. The tree seems to be a more hardy plant, being easily reconciled to very various soils and situations. It grows very freely, and quickly arrives at a considerable size."

♀ P. *s.* 3 *uncinàta* (see *fig.* 1672.). The hook-coned wild Pine; Mar Forest wild Pine, in the Horticultural Society's Garden. — Another of Don of Forfar's varieties, which is described by him, in the

article before quoted, as a remarkable variety, quite distinct both from *P.* s. vulgàris and *P.* s. horizontàlis. It will be observed that this hooked cone is quite different, both in its general form, and the form of its scales, from the cone of *P.* (s.) p. *Mùghus*, which is also often called *P.* uncinàta.

1762. *P.* s. uncinàta.

P. *s.* 4 *haguenénsis.* Pin de Haguenau, *Fr.*; Rothentanne of Schöttel, seedsman, Rastadt.—This variety was introduced from the Forests of Haguenau (whence its name) and Rastadt, on both sides of the Rhine. It is thus described in Lawson's *Manual*:—"The old trees are remarkably tall, straight, free from branches, except near the summit, with remarkably smooth reddish-coloured bark. The leaves of the young plants are longer than those of any of the preceding varieties; they are much waved or twisted, of a light green slightly glaucous colour, and minutely serrulated; the young terminal buds are of a peculiar reddish colour, and generally more or less covered with whitish resin. The young plants are, besides their difference in shade of colour, readily distinguished by their stronger and more rapid growth." (*Agricult. Manual*, p. 230.)

P. *s.* 5 *rigénsis.* Pin de Riga, *Desf. Hist.* t. ii. p. 61.; Pin de Russie, Pin de Mâture, *Fr.*—This variety is said to constitute the forests of Lithuania and Livonia.

*Other Timber Tree Varieties.* The names of several might be given from books; but, as we could neither accompany them with descriptions nor synonymes, nor refer to any place where living plants may be seen, we consider that it would be of very little use. *P.* s. altíssima, in the Horticultural Society's Garden, is a strong-growing variety, resembling the pin de Haguenau, and is probably identical with it, though raised from Caucasian seeds; but *P.* altíssima is a name more generally applied to *P.* Larício than to *P.* sylvéstris.

b. *Varieties curious or ornamental.*

P. *s.* 6 *genevénsis.* Pin de Tarare, *Fr.*; the Geneva wild Pine.—There is a plant of this variety in the Horticultural Society's Garden, a portrait of which is given in *Arb. Brit.*, 1st edit. vol. viii., by which it appears to be a low crooked tree, with numerous twisted branches, extending considerably at the base.

P. *s.* 7 *monophýlla* Hodgins.—The leaves are long and glaucous, and those of each sheath are generally attached to each other throughout their length; though when the points are taken between the finger and thumb, and the apparently single leaf twisted, it separates into two, and sometimes into three, leaves. Hort. Soc. Garden.

P. *s.* 8 *scariòsa.* *P.* scariòsa *Lodd. Cat.* ed. 1836; ? *P.* squamòsa *Bosc Nouv. Cours d'Agr.* art. *Pin*, and *Arb. Brit.* 1st edit. p. 2292.—Cones small, with long scales, flat at the tips, and bent back. Native of the Lower Alps. (*Bosc.*) A French variety. Introduced about 1820.

P. *s.* 9 *intermèdia.*—This is a Russian variety, having slender young shoots depressed towards the stem, and leaves shorter and less glaucous than those of the species. Horticultural Society's Garden.

P. *s.* 10 *altàica* Ledebour.—Raised from seeds received from Dr. Ledebour in 1836. Horticultural Society's Garden.

P. *s.* 11 *tortuòsa* Don of Forfar. — Leaves shorter than those of *P. s.* vulgàris, and somewhat curled, or rather twisted.

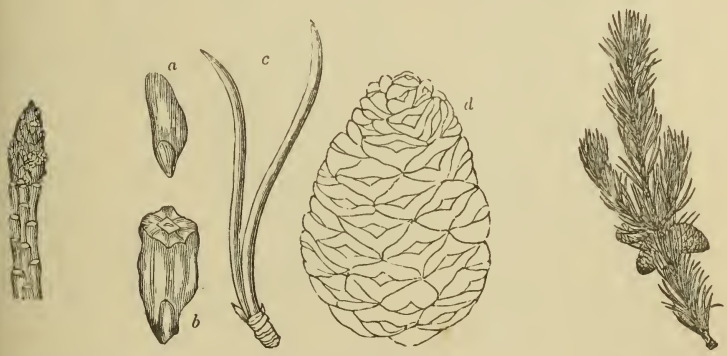
*Other Varieties.* *P.* rotundàta, and some other species which appear to us to be varieties of *P.* sylvéstris, are described by Link; and *P.* hamàta and *P.* argéntea are described by Stevens, as given in *Gard. Mag.*, vol. xv. p. 224., but none of these kinds have yet been introduced. We might also have included in the above list *P.* (s.) pumílio; but though we have no doubt of its being only a variety of *P.* sylvéstris, yet it is so very different both in appearance and magnitude, that we have kept it apart.

The weight of the wood of *P.* sylvéstris varies according to its age and other circumstances. A cubic foot, in a green state, generally weighs from 54 lb. to 74 lb.; and, in a dry state, from 31 lb. to 41 lb. The wood is valued, like that of every other pine, in proportion to its freeness from knots; and it is found that the knots of this species are much more easily worked, and much less liable to drop out of flooring boards, than is the case with knotty boards of the spruce or silver fir. The facility with which the wood of the Scotch pine is worked occasions its employment in joinery and house carpentry, almost to the exclusion of every other kind of timber, wherever it can be procured. It is at once straight, light, and stiff, and, consequently, peculiarly fitted for rafters, girders, joists, &c., which may be made of smaller dimensions of this timber than of any other. In point of durability, if it is kept dry, it equals the oak; more especially if it has been of slow growth, and is resinous. As a timber tree, for planting in poor dry soils and in exposed situations, none can excel the Scotch pine, and it is only equalled by the larch. In Britain, it surpasses every other species of the pine and fir tribe for sheltering other trees, with the exception of the spruce fir, which, being of a more conical shape, admits more light and air to the heads of the trees which are to be drawn up by it. The Scotch pine is, however, altogether unfit for giving shelter in single rows, unless the branches are allowed to remain on from the ground upwards, and the roots have free scope on every side. Hence, this pine, like every other species of the tribe, is altogether unfit for a hedgerow tree. When planted in narrow belts round fields for shelter, it soon becomes unsightly, unless the trees stand so thin as to allow of their being clothed with branches from the ground upwards. The true situation for this tree, when grown for timber, is in masses over extensive surfaces. A granitic soil, it is generally allowed both by British and Continental writers, is the most congenial to the Scotch pine; and the sand and gravel of the Forests of Rastadt and Haguenau are composed of the debris of this rock. It does not harden its wood well when growing on the grauwacke; and it is short-lived, and never attains a large size, on chalk. It will grow and flourish in any kind of soil, from a sand to a clay, provided the substratum be rubble or rock; but in wet tilly soils it ought never to be planted; because, whenever the roots have exhausted the upper soil, and begin to perforate the subsoil, the tree languishes and dies. It is justly observed by Mathews, that the natural location of the Scotch pine in poor sandy soils does not result from these soils being best adapted for it; but from the seeds which are blown about by the winds rising readily in such soils, and the plants growing more vigorously in them than any other tree. Should any one doubt this, he observes, let him make an excursion into Mar Forest, and there he will find the Scotch pine in every description of soil and situation, but always thriving best in good timber soil; and, in short, not differing very materially, in respect to soil, from the sycamore, the elm, the oak, or the ash. The Scotch pine produces cones at the age of fifteen or twenty years; and every cone generally contains from 60 to 100 seeds. The cones are gathered in the months of December and January, and laid in a dry loft, where they will keep good for a year or two, if not wanted for sowing; and whence they may be taken in early spring, and exposed to the sun, or at any season, and slightly dried on a kiln, as already mentioned, p. 949

♠ ♀ 2. *P.* (s.) PUMI'LIO *Hænke.* The dwarf, *or Mountain,* Pine.

*Identification.* Hænke Beob., 68.; Lamb. Pin., ed. 2., 1. t. 2.
*Synonymes.* *P.* sylvéstris montàna γ *Ait. Hort. Kew.* ed. 1. 3. p. 366.; *P.* s. hùmilis γ *Neal.*; *P.* hùmilis, &c., *Tourn. Inst.* 586., *Link Abhand.* p. 171.; Pin nain, *Fr.*; Krumholz, *Ger.*
*Engravings.* Lamb. Pin., ed. 2., 1. t. 2.; our *fig.* 1765. to our usual scale; and *figs.* 1763. and 1764. of the natural size.

*Spec. Char., &c.* Branches generally recumbent. Leaves short, stiff, somewhat twisted; thickly distributed over the branches, with long, lacerated, woolly, white sheaths. Cones, when young, erect; when mature, pointing outwards. Buds (*fig.* 1763.) ovate, blunt, resinous. Leaves (*fig.* 1764. *c*)




1763. 1764. *P* (s.) pumílio. 1765.

from 2 in. to 2½ in. long; sheaths, at first, from ½ in. to 1¾ in. long, white and lacerated; afterwards falling off or shrinking to ⅛ in. or ¼ in. long, and becoming dark brown or black. Cones (*d*) from 1½ in. to 2 in. long, and from ¾ in. to 1 in. broad; reddish or dark purplish brown when young, and of a dull brown when mature. Scales (*b*) and seeds (*a*) resembling those of *P.* sylvéstris, but smaller. Cotyledons 5 to 7. A large spreading bush, or low tree. Europe, on mountains. Height 10 ft. to 20 ft. Introduced in 1779. Flowering and ripening its cones at the same time as the Scotch pine, when in a similar locality.

*Varieties.*

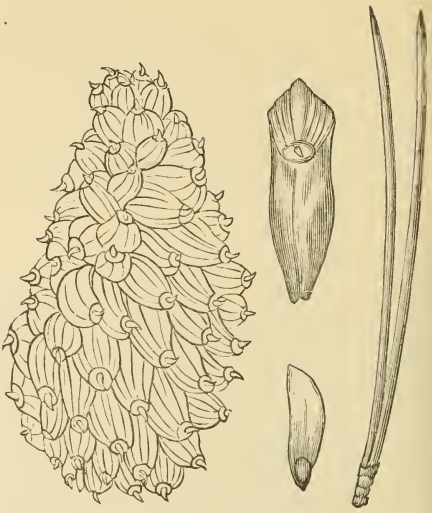
♠ ♀ P. (*s.*) *p.* 2 *rubræflòra.*—Flowers red.

♠ ♀ P. (*s.*) *p.* 3 *Fischeri Booth, Lodd. Cat.* ed. 1836, *Lawson's Man.* p. 333.—In the shoots and foliage, it bears so strong a resemblance to *P.* (s.) pumílio, that we doubt very much if it even merits to be considered as a variety of that species. Introduced in 1832. H. S.

♠ ♀ P. (*s.*) *p.* 4 Mùghus. *P.* s. *Mùgho* Matt. Camer.; *P.* montàna *Baum. Cat.*; *P. Mùgho* Jacq., Poir., and N. Du Ham. v. p. 233. t. 68. (our *figs.* 1766. and 1767., the latter showing the cone, seed, scale, and sheath of leaves, of the natural size); *P.* echinàta *Hort.*; *P.* uncinàta *Ramond* in *Dec., Lodd. Cat.* ed. 1836; the Mugho wild Pine; Pin Mugho, Torchepin, Pin suffis, Pin crin, Pin du Briançonnais, Pin de Montagne, *Fr.*; Bergfichte, *Ger.*; Mughi, *Ital.*—This variety is included by Aiton and others in the preceding one; but, having seen both sorts bearing cones, we are satisfied that they are distinct, though they bear so close a resemblance to each other in foliage and habit,

1766. *P.* (s.) *Mughus*

that, when the cones are absent, they might be supposed to be identical. It is remarked in the *Nouveau Du Hamel*, that all the published figures of this variety are bad, with the exception of the one given in that work, from which ours is copied. On comparing *figs.* 1764. and 1767., it will be found that the cones of *P.* (s.) p. *Mùghus*, independently of the peculiar protuberant appearance of the scales, are larger than those of *P.* (s.) pumílio. This and other differences in the cones are quite sufficient, in a technical point of view, to constitute *P.* (s.) p. *Mùghus* and *P.* (s.) pumílio distinct species; but, notwithstanding this, they bear such obvious marks of belonging to *P.* sylvéstris, in their foliage, habit, and locality, that we cannot for a moment hesitate about their connexion with that species.



1767. *P.* (s.) *Mùghus.*

P. (s.) *p.* 5 M. *nàna.* The Knee Pine of the Styrian Alps.—Never grows above 3 ft. high. (*Antoine's Coniferen*, p. 13.; and *Gard. Mag.*, 1841, p. 29.) A plant has been in the Trinity College Botanic Garden, Dublin, since 1817; and, in 20 years, it has not attained a greater height than an ordinary-sized man's knee.

*Other Varieties.* *P.* (s.) pumílio and *P.* (s.) p. *Mùghus* vary so much according to the localities in which they are found, that, if it were desirable to increase the number of subvarieties, there might be a dwarf, a tall, and a medium form given to each. In the Horticultural Society's Garden, there is a handsome, erect-growing, small tree of *P.* (s.) p. *Mùghus*, under the name of *P.* uncinàta, and also a dwarf plant, under the same name; both producing hooked cones.

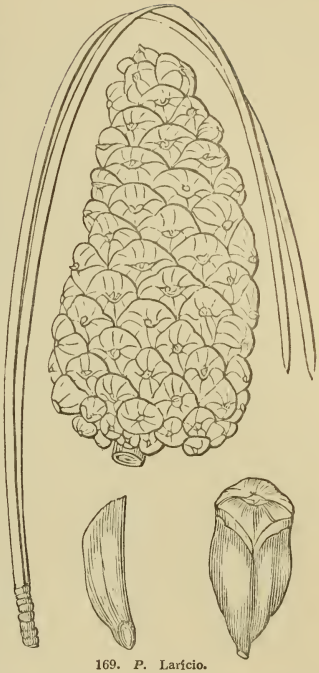
### 3. *P.* Larí'cio *Poir.* The *Corsican, or* Larch, Pine.

*Identification.* Poir. in Lam. Encyc., 5. p. 339.; Dec. Fr. Fl., 3. p. 274.
*Synonymes.* *P.* sylvéstris ε marítima *Ait. Hort. Kew.* iii. p. 366.; *P.* marítima, ed. 2. v. p. 315.; Pinastro, Pino chiappino, *Ital.*
*Engravings.* Lamb. Pin., ed. 2., 1. t. 4.; N. Du Ham., t. 69. and 69. f. 2.; the plates of this species in Arb. Brit., 1st edit., vol. viii.; our *fig.* 1771. to our usual scale, from a specimen received from the Horticultural Society's Garden; and *figs.* 1768. to 1770. of the natural size

*Spec. Char., &c.* Leaves lax, twice the length of the cones. Cones conical, often in pairs, sometimes, but rarely, in threes or in fours. Scales convex on the back, elliptic in their general form, scarcely angular, and very slightly pointed. Male flowers almost sessile, elongated, having the anthers terminated by a small round crest. Bud (see *fig.* 1768.) from $\frac{3}{4}$ in. to 1 in. long; and from $\frac{3}{8}$ in. to $\frac{1}{2}$ in. broad; ovate, with a long narrow point, and concave at the sides, resembling a camel-hair pencil. Scales adpressed, and encrusted with white resin. The centre bud generally surrounded by three or more small buds. Cones varying from 2 in. to 3 in. or more in length;

and from $\frac{3}{4}$ in. to $1\frac{1}{2}$ in. in breadth. The points of the scales turned over like an under lip, and terminating in a point which has a very small prickle, often scarcely perceptible. The colour of the cone tawny, and the interior part of the scales purple. Leaves varying in length from 4 in. to 6 in. and upwards; generally two in a sheath on the side branches, but occasionally three on the leading shoots. Seeds greyish or black, twice as large as those of *P.* sylvéstris. Cotyledons (see *fig.* 1770.) 6 to 8. A lofty tree. Corsica, Spain, Italy, Greece, and various parts of the South of Europe, the Hartz in Germany, and Caucasus in Russia; generally on deeper soil than *P.* sylvéstris. Height 60 ft., 80 ft., 100 ft., 150 ft., according to the variety, the climate, and the soil. Introduced in 1759. It flowers in May, and its cones are ripe in November of the second year.

1768.
*P.* Laricio.



169. *P.* Laricio.

*Varieties.* Judging from the names in Continental catalogues, these are numerous; but, as these names are chiefly expressive of different localities, we are ignorant how far the plants are really distinct. In the *Nouveau Du Hamel* only one variety is given, which is characterised by the cones being greenish, those of the species being described as of a tawny or fawn colour. Delamarre, in his *Traité Pratique*, &c., enumerates five varieties, some of which, however, are considered by M. Vilmorin as being probably species; the cones not having yet been seen.

- P. *L.* 1 *corsicàna.* Laricio de l'Ile de Corse, *Delamarre.* — Cones of a tawny or fallow colour.
- P. *L.* 2 *subvíridis* Nouveau Du Hamel. — Cones of a greenish yellow.
- P. *L.* 3 *caramánica.* *P.* caramánica *Bosc*; *P.* caramaniénsis *Bon Jard.*, ed. 1837, p. 974.; Laricio de Caramanie ou de l'Asia Mineure, *Delamarre*; ? *P.* romàna *Lond. Hort. Soc. Gard.* — *P.* L. caramánica seldom grows to above half the height of *P.* L. corsicàna: it has a much rounder and more bushy head, with straight, or nearly straight, leaves, slender branches, reddish-coloured bark, and reddish buds, which are wholly, or in part, covered with white resin. The scales of the cones, which are larger than those of *P.* L. corsicàna, are tipped with a harder and more horny point. Introduced into France from the Levant in 1798, and to England in 1820.
- P. *L.* 4 *calábrica.* Laricio de Mont Sila en Calabre, *Delamarre.* — This pine, Michaux and Vilmorin remark in a note to Delamarre's work, resembles the pine of Caramania; but there are only young plants of it in France, which have not yet fruited.

1770.

♀ P. L. 5 *austrìaca*. *P.* austrìaca *Höss*; Laricio d'Autriche, ou de la Hongrie, *Delamarre*.—Scarcely differs from *P.* caramánica, which grows both in Romania and in the Crimea. We are satisfied of this, not only from living plants in British gardens, but from cones which we have received from Vienna.

*Other Varieties.* *P.* altíssima and probably some other names are applied to *P.* Larício, or some of its varieties, but not in such a manner as to enable us to state anything satisfactory respecting them. The only truly distinct forms of this species, in our opinion, are, *P.* L. corsicàna, *P.* L. caramánica (of which there is a handsome tree in the Horticultural Society's Garden, under the name of *P.* romàna), *P.* L. Pallasiàna (of which there are trees at White Knights and Boyton), and perhaps *P.* L. pyrenàica; the two last we have treated as species, for the sake of keeping them distinct.

The branches are disposed in whorls, of five or six in a whorl; which are distinguished from the branches of *P. Pináster*, by being often twisted and turned in a lateral direction at their extremities, especially in full-grown trees. The leaves vary much in length, according to the age of the tree, and the soil on which it grows. The shortest are generally 4 or 5 inches, and the longest 7 or 8 inches, long. The cones are commonly in pairs, but sometimes three and sometimes four occur together: they point horizontally and slightly downwards, and sometimes they are slightly curved, so as to be concave at the extremity of the side next the ground. They are from 2 in. to 3 in., or more, in length; of a ruddy yellow or tawny colour, or greenish. In France, according to Thouin, *P.* Larício grows two thirds faster than the Scotch pine, placed in a similar soil and situation. Baudrillart says that the wood of *P.* Larício has neither the strength nor the elasticity of that of *P.* sylvéstris. Previously to the year 1788, the wood was only used by the French government for the beams, the flooring, and the side planks of ships; but, in that year, the administration of the marine sent two engineers to examine the Forests of Lonca and Rospa in Corsica, in which abundance of trees were found fit for masts. After this, entire vessels were built with it: only it was found necessary to give greater thickness to the masts, in order to supply its want of strength and elasticity. The thickness of the sap wood in *P.* Larício is greater than in most other species of pine; but the heart wood is found to be of very great duration. In Corsica, it is employed for all the purposes for which it is used, when of 36 or 40 years' growth. It is easily worked, and is used both by cabinetmakers and sculptors in wood; the figures which ornament the heads of vessels being generally made of it. In Britain, the tree hitherto can only be considered as being one of ornament; and, as such, it deserves to be planted extensively for its very regular and handsome form, and the intensely dark green of its abundant foliage. It also deserves planting on a large scale as a useful tree, on account of the great rapidity of its growth. In the low districts of Britain, it might probably be a good substitute for *P.* sylvéstris.

1771. *P.* Larício.

♀ 4. *P.* (L.) AUSTRÌACA *Höss*. The Austrian, *or black*, Pine

*Identification.* Höss Anleit., p. 6.; Lawson's Manual, p. 338.
*Synonymes.* *P.* nigricans *Hort.*; *P.* nigrescens *Hort.*; schwartz Föhre, *Ger.*
*Engravings.* *Fig.* 1772., showing the bud of a plant of two years' growth in the Horticultural Society's Garden; and *fig.* 1773., a cone of the natural size, from a specimen received at Vienna.

*Spec. Char., &c.* Sheath with from 3 to 5 rings, at first of a clear ash grey, then becoming reddish, afterwards darker, and at last black. Leaves from 2 in. to 5 in. long; seldom, and but little, twisted; when young, erect; when older, standing out, and curved towards the twig; outer surface half-round, dark green, glossy, and with a sharply serrated margin; inner surface nearly even, but slightly dotted along the ridge; points prickly, of a yellowish brown or fawn colour. Buds large, the leader often from 1 in. to 1¼ in. long, ovate, with a long point. The cone does not arrive at maturity till October in its second year; it is conical, rounded at the base, 2 or 3 inches long, pointing horizontally, or nearly so; of a light yellow brown, polished, and shining. Seeds very closely resembling those of *P.* Larício; and the cotyledons 6 or 8, as in that species. The bark of the shoots of the current year is of a greenish yellow, regularly and deeply raised by the insertions of the leaves, furrowed, and shining. (*Höss's Gemeinfassliche Anleitung*, &c., p. 8.) A large tree. Austria, in the Breima Forest (Wienerwald), the Banate, upon the Demoglet, near Mehadia; and in the neighbourhood of the Snowy Mountains, at higher altitudes than *P*ícea pectinàta. Height 60 ft. to 80 ft. Introduced in 1835. It flowers about the end of May, and its cones are ripe in the October of the second year.

1772.

1773. *P.* (L.) austrìaca.

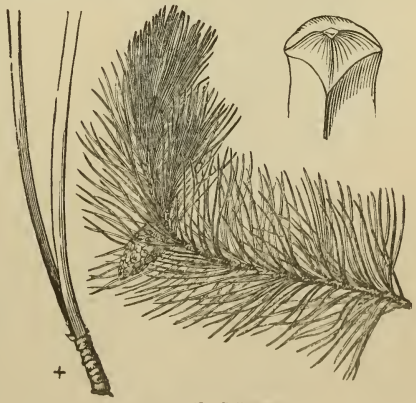
This pine prefers a deep, dry, calcareous sand; but it will succeed in any soil, provided it is loose; and it even loves a moist soil, if not too wet. It thrives best in situations having a southern aspect. The sap wood of *P.* austrìaca is said by Höss to be of a whitish yellow, and the heart wood of a rusty yellow; the latter being very resinous, strong, and tough. It is much valued in Austria, when kept dry; and is said to surpass even the larch in resisting the injurious effects of water, or of alternate moisture and dryness.

♀ 5. *P.* (L.) PALLASIA`NA Lamb. Pallas's, *or the Tartarian*, Pine.

*Identification.* Lamb. Pin., ed. 2., 1. t. 5.; Lawson's Manual, p. 339.

*Synonymes.* *P.* taúrica *Hort.*; *P.* tatárica in the Hammersmith Nursery in 1797; *P.* marítima *Pall. Ind. Taur.* (according to a specimen in Mr. Lambert's herbarium); Tzaam in the Tartar language.

*Engravings.* Lamb. Pin., ed. 2., 1. t. 5.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; our *figs.* 1774. and 1776. to our usual scale; *figs* 1775. and 1777. of the natural size, from living specimens received from A. B. Lambert, Esq., taken from his trees at Boyton.



1774. *P.* (L.) Pallasiàna.

*Spec. Char., &c.* Leaves in pairs, very long, erect, rigid, channeled; sheaths very short. Crest of the anthers roundish, convex, repand. Cone ovate-oblong, often curved. Scales slightly tuberculate, and terminated by a very small prickle. (*Lamb.*) Bud (*fig.* 1775.) ¾ in. to 1¼ in. long, and from

1775.
*P.* (L.) Pallasiana.

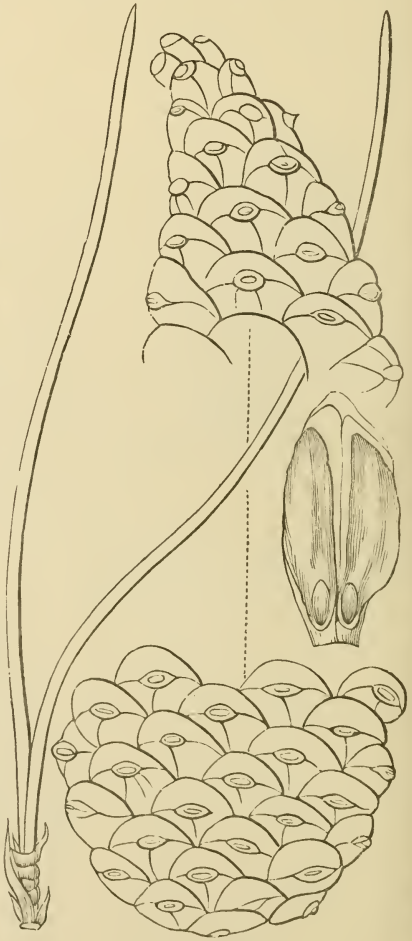
½ in. to 1 in. broad; ovate, and pointed, with the sides concave, like those of *P.* Larício, but much larger. Leaves (see *fig.* 1777.) from 4 in. to 7 or 8 inches in length; sheath from ½ in. to ¾ in. in length. Cones from 4 in. to 5 in. in length, and from 1½ in. to 1¾ in. in breadth at the widest part; ovate-oval, acuminate, horizontal in their direction, and slightly incurved at the extremities, which point downwards. Scales as in those of *P.* Larício, but larger. A large spreading tree. Taurica. Height 60 ft. to 70 ft., sometimes 80 ft. Introduced in 1790. It flowers in the end of May, and its cones are ripe in November of the second year.

*Varieties.* We can readily conceive that *P.* L. Pallasiàna, like every other variety of *P.* Larício, is liable to sport; and, accordingly, of the trees possessed by Mr. Lambert, one has the cones straight and short, and another long and crooked. The *P.* taúrica of the London gardens is without doubt a synonyme, and not even a variety.

This tree is about the size of *P.* sylvéstris, but much more spreading, sending out numerous large, declining, and horizontal branches from the summit to the base; the lower branches almost equalling the trunk itself in size. The chief circumstance in which

1776. *P.* (L.) Pallasiana.

*P.* (L.) Pallasiàna differs from *P.* Larício, judging from the trees at White Knights, is in the length of the cones: the leaves are also larger than those of *P.* Larício; and, on the whole, the difference may be compared to that which exists between *T*ília eu-



1777. *P.* (L.) Pallasiana.

ropæ'a and *T.* e. grandifòlia, or the pin de Hageneau and the pin de Genève.

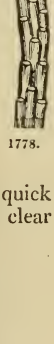
♀ 6. *P.* (L.) PYRENA'ICA *Lap.* The Pyrenean Pine.

*Identification.* La Peyrouse Supp. Fl. Pyren.; Bon Jard., ed. 1837, p. 975.; Lawson's Manual, p. 335.

*Synonymes.* *P.* hispánica *Cook's Sketches in Spain*, 2. p. 237.; *P*ináster hispánica *Roxas di San Clemente*; *P.* penicéllus *Lap. Hist. des Pl. des Pyrénées*; *P.* halepénsis màjor *Ann. d'Hort. de Paris*, 13. p. 187.; Pin Nazaron, Pin pinceau, Fr.

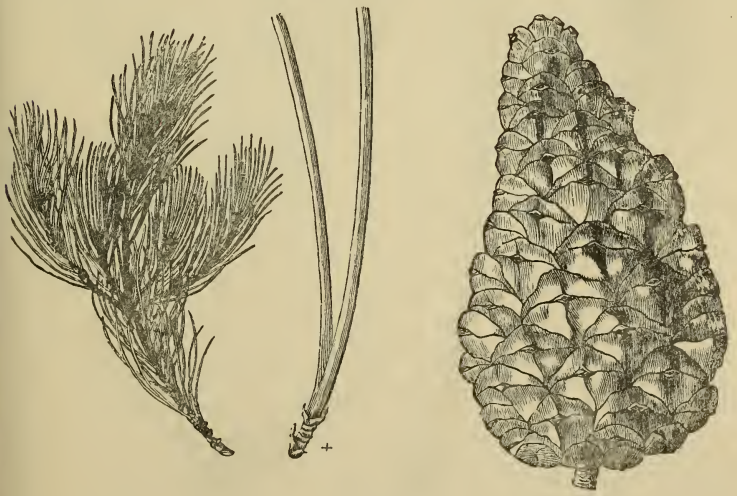
*Engravings.* Our *fig.* 1780. from a cone received from M. Vilmorin, *fig.* 1778. from a bud of the plant in the Horticultural Society's Garden, both of the natural size; and *fig.* 1779., to our usual scale, from a tree growing, in 1837, at Woodside, near Hatfield, the residence of John Church, Esq.

*Spec. Char., &c.* Leaves long, in tufts at the extremities of the shoots; branches dispersed, naked, scaly when young. Cones conical, smooth, and a little recurved, seeds hard. (*Lap.*) The tree when young somewhat resembles *P.* halepénsis, but when older it assumes a much higher stature, and a more pyramidal form. The cones are, like those of *P.* halepénsis, on strong footstalks; but, instead of pointing downwards, they are always in a horizontal direction. The leaves are long and fine; but strong and upright, and arranged round the branches like the hairs of a camel-hair pencil, whence the name of pin pinceau. They are sometimes three in a sheath, on the young shoots. (*Ann. de la Soc. d'Hort. de Paris*, xiii. p. 186.) A majestic tree. Spain, in the extensive forests of the Sierra de Segura, and other places. Height 60 ft. to 80 ft. Introduced in 1834. It flowers in May, and its cones are ripened in the November of the second year.



1778.

Captain Cook, who introduced this pine, describes it as quite hardy, of quick growth, and from its noble appearance, the beauty of its form, and the clear



1779. *P.* (L.) pyrenaica. 1780

transparent colour of both the bark and foliage, likely to be a vast acquisition to our park scenery. The timber is white and dry, being nearly without turpentine; but the cones exude a most delicious balsamic odour, as do the leaves. H. S.

♀ 7. *P.* PINA'STER *Ait.* The Pinaster, *or Cluster*, Pine.

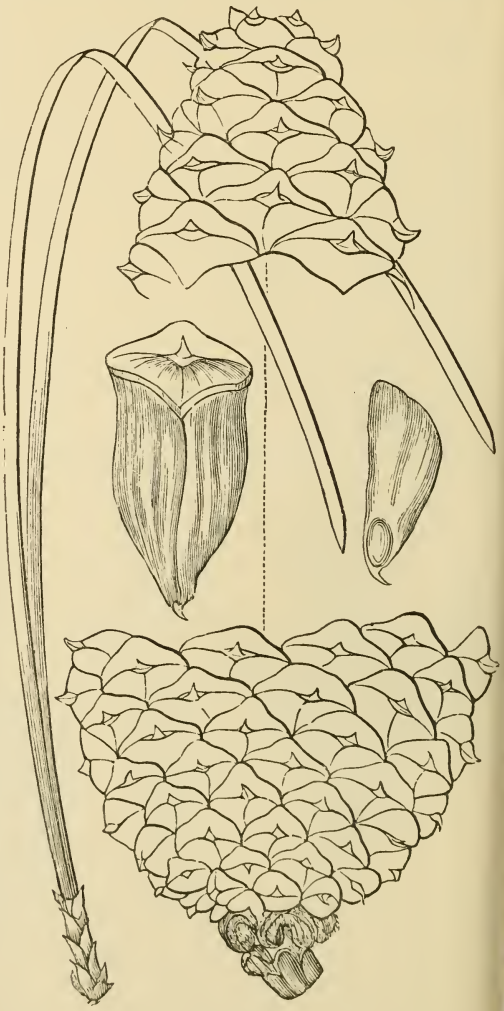
*Identification.* Ait. Hort. Kew., ed. 1., 3. p. 367.

*Synonymes.* *P.* sylvéstris γ *Lin. Syst. Reich.* 4. p. 172.; *P.* marítima áltera *Du Ham. Arb.* No. 4.

t. 29. ; *P.* marítima *N. Du Ham.* 5. p. 240. ; *P.* sýrtica *Thore Prom. sur les Côtes de Gascogne*, p. 161. ; *P.* Massoniàna Lamb. 2 ed. 118. ; Pin de Bordeaux, Pin des Landes ; Pinastro, *Ital.*
*Engravings.* Du Ham. Arb., No. 4. t. 26. ; Lamb. Pin., ed. 2., 1. t. 9. ; N. Du Ham , 5. t. 72. and 72. bis f. 1. ; the plates of this tree in Arb. Brit., 1st. edit. vol. viii. ; our *fig.* 1786., to our usual scale ; *figs.* 1781. and 1782., of the natural size, from Dropmore and Pain's Hill specimens.

*Spec. Char., &c.* Leaves in pairs, rigid, very long. Cones conical, placed in whorls of 3, 4, or even as many as 8, together ; rather solitary, much shorter than the leaves ; the backs of the scales forming each a rhomboidal pyramid, with two lateral angles, from which proceed ribs, terminating at the summit of the pyramid in a smaller pyramid, which has a hard point, more or less sharp, and of a grey colour. Crest of the anthers rounded. Bud (*fig* 1781.)

1781. *P. Pináster.*



1782. *P. Pináster.*

from $\frac{5}{8}$ in. to $\frac{3}{4}$ in. long; and from $\frac{3}{8}$ in. to $\frac{1}{2}$ in. broad ; straight-sided, cylindrical, with the scales turned back ; white and woolly, but never resinous ; surrounding buds few and small. Leaves (see *fig.* 1782.) from 6 or 8 inches to 1 ft. in length, slightly serrated on the margins ; sheaths from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. in length; imbricated, scarcely rigid ; pale green or whitish at first, and becoming at last black. Cones from 4 in. to 6 in. in length, and from $1\frac{3}{4}$ in. to $2\frac{1}{2}$ in. wide at the broadest part ; light brown, and shining; scales from 1 in. to $1\frac{1}{4}$ in. in length, and from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. in breadth at the widest part ; terminating in a regular pyramid ; rhomboidal at the base. The summit consisting of a smaller rhomboidal pyramid, of an ash-grey colour, very

hard, and with a small sharp point, more particularly in the upper part of the cone. Seeds oblong, and measuring, without the wing, upwards of $\frac{3}{4}$ in. in length, and nearly $\frac{1}{4}$ in. in breadth; with the wing above $1\frac{3}{4}$ in. in length; wing nearly $\frac{1}{2}$ in. in breadth. Cotyledons 7 or 8. A large tree. South of Europe and Greece; chiefly in low situations, and sandy soils near the sea. Height 50 ft. to 60 ft. sometimes 70 ft. Introduced in 1596. It flowers, near London, in the beginning of June; in the North and West of France, in May; and on the Landes of Bordeaux, in April; and the cones ripen at the end of the second year.

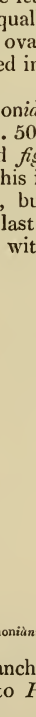
*Varieties.* The extensive geographical range of this tree has given rise to many varieties, though we have seen but very few that can be considered truly distinct.

♀ P. P. 2 *Aberdòniæ Gard. Mag.* vol. xv. p. 128. *P. P.* Escarèn*us* Arb. Brit. 1st edit. p. 2214.—The leaves are of a paler green than those of the species, but they are equally long and strong. The cones are shorter, and more ovate. A most distinct and handsome variety. Introduced into Britain by the Earl of Aberdeen, in 1825.

♀ P. P. 3 *Lemoni*ànus. *P.* Lemon*iàna* Benth. Hort. Transact., vol. i., second series, p. 509. pl. 20.; and our *fig.* 1783. to our usual scale, and *fig.* 1784. to the natural size.—This is also a very distinct variety, but quite the opposite of the last; being a stunted bushy plant, with zigzag, close, and twiggy branches; and standing apparently in the same relation to *P. P*ináster that *P.* (s.) pumílio does to *P.* sylvéstris.

1783. *P. P.* Lemoni*ànus.*

1784.



♀ P. P. 4 *mìnor. P.* marítima mìnor *N. Du Ham.* v. p. 242. t. 72. bis, f. 1., and our *fig.* 1785.; Pin Pinsot, Pin de Mans, Pin à Trochet.—This variety, which is chiefly distinguished by the somewhat smaller size of its cones, being from $3\frac{1}{2}$ in. to 4 in. long, and $1\frac{3}{4}$ in. broad, is said by Bosc to be produced by a colder climate, and to abound on the west coast of France, especially on the barren sands in the neighbourhood of Mans; and to be hardier than the species. It is found in the Landes of Bordeaux, growing along with *P. P*ináster.

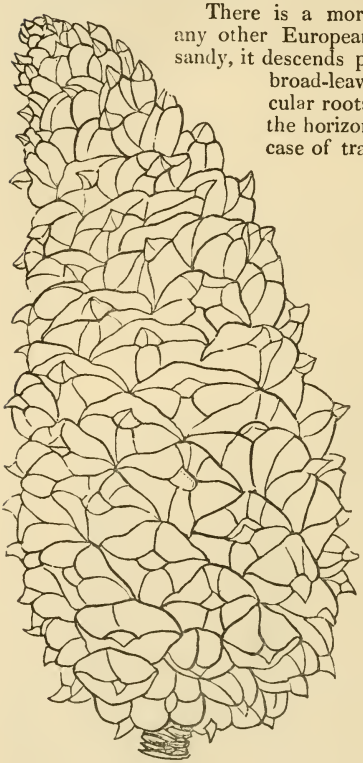
♀ P. P. 5 *fòliis variegàtis.*—Leaves variegated.

♀ P. P. 6 *marítimus.*—Shoots and leaves more slender than those of the species. Greece and Italy, on the sea coast.

*Other Varieties.* Several enumerated in our first edition bear the names

of the countries whence they were introduced, but they are not worth keeping distinct. The only varieties of pinaster which we think worth cultivating are, *P. P.* Aberdòn*iæ* and *P. P.* Lemon*iànus*, and, for those who like variegated plants, *P. P.* fòliis variegàtis.

There is a more decided taproot in this pine than in any other European species; and, where the soil is dry and sandy, it descends perpendicularly into it, like the root of a broad-leaved tree. In proportion as the perpendicular roots are stronger than those of other pines, the horizontal roots are weaker; and hence, in the case of transplanted trees, from the weight of the



1785. *P. P.* minor.

1786. *P.* Pináster.

head, produced by the dense mass of long foliage, the stem is generally inclined to one side; and when, after two or three years, it begins to grow erect, a curvature appears close above the root, which remains visible even in old trees. The rate of growth is very rapid; plants, in 10 years from the seed, attaining the height of 10 or 12 feet, and, in twenty years, the height of 30 ft., in the climate of London. The wood is in thick layers, soft, and not of great duration. The most remarkable fact in the history of this tree is the great use which has been made of it in France, in covering immense tracts of barren sand on the sea coast. Though the wood of the pinaster is soft, and not of long duration, it is employed, in the marine arsenal at Toulon, for the outer cases of all the packages which are put on board vessels, and principally for the piles and props which are used for sustaining the frames of vessels while they are being constructed. In Bordeaux and in Provence, it is employed for the common kinds of carpentry, for packing-boxes, and for fuel; but the most valuable purposes to which the tree is applied in these countries is the production of rosin, tar, and lampblack. The modes of procuring pitch, tar, rosin, &c., from the *P*ináster, are given at length in our first edition, vol. iv. p. 2221. to 2224. A deep dry sand, or a sandy loam on a dry bottom, suits this tree best; it abhors chalk, and every description of calcareous soil. With

respect to elevation, though it will endure the sea breeze, it will not thrive, in England, much above the level of the sea.

♀ 8. *P. PI'NEA L.* The *Stone* Pine.

*Identification.* Lin. Sp. Pl., 1419.; Ait. Hort. Kew., ed. 1., 3. p. 368.
*Synonymes.* *P.* sativa *Bauh. Pin.* p. 491.; *P.* doméstica *Matth. Comm.* 87.; Pin Pignon, Pin bon, Pin cultivé, Pin Pinier, *Fr.*; Geneissbere Fichte, *Ger.*; Pino da Pinocchi, *Ital.*
*Engravings.* Blackw., t. 189.; Du Ham. Arb., 2. t. 27.; Tabern. Ic., 936.; Lamb. Pin., 1. t. 10, 11.; N. Du Ham., 5. t. 72. f. 3.; Poit. et Turp., t. 125.; Michx. N. Amer. Syl., 3. t. 135.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; our *fig.* 1788., to our usual scale; *figs.* 1787. to 1789., of the natural size, from Dropmore and White Knights.

*Spec. Char., &c.* Leaves in pairs. Cones ovate, obtuse, nearly as long as the leaves, their scales with recurved deciduous points. Seed bony, with very short wings. Crest of the anthers jagged. (*Smith.*) The buds (see *fig.* 1787.) resemble those of *P.*ináster, but are smaller in all their dimensions, much less pointed, more woolly, and wholly without resin. The surrounding buds are nearly as large as the central one. The leaves are from 5 in. to 7 in., and sometimes 8 in., long, serrated; sheaths, at first, ½ in. long, afterwards becoming lacerated, shortened to half their length, and ringed with four or five rings. Cone from 5 in. to 6 in. in length; and from 3½ in. to 4 in. in breadth; scales large and woody, from 2 in. to 2½ in. in length, and from 1 in. to 1¼ in. in breadth, with the thickened part pyramidal, rhomboidal, and sometimes hexagonal in the plan, resembling those of *P. P*ináster, but having four ribs from the four angles, instead of two from the lateral angles. The ribs meet in a small rhomboidal pyramid, of a grey colour, which terminates in a broad blunt prickie. The colour of the entire cone is much lighter than that of *P. P*ináster, and is of a pale wainscot colour. Seeds, without the wing, ¾ in. long, and from ⅝ in. to ⅜ in. broad; with the wing, 1 in. long. Cotyledons 9 to 11. A low or middle-sized tree. Greece, and cultivated in Italy. Height, in Greece, 50 ft. to 60 ft.; in England, 15 ft. to 20 ft., rarely 30 ft. Introduced in 1548. It flowers, in the climate of London, in the latter end of May or the beginning of June, and ripens its cones in the autumn of the second year.

1787. *P. Pinea.*

*Varieties.*

♀ ? P. P. 2 *frágilis* N. Du Ham. v. p. 242.— The only variety mentioned by Continental authors; and it only differs from the species in having a tender shell to the seed.

♀ P. P. 3 *crética* Hort. — The leaves seem to be rather finer than those of the species.

In the South of Europe, this species is a large tree, with a spreading head, forming a kind of parasol, and a trunk 30 or 40 feet high, clear of branches; but in England it generally forms a bush rarely exceeding 15 ft. in height. The soil for the stone pine should be deep, sandy, and dry, and the situation sheltered, though the plants should not be crowded. The seeds are procured from foreign cones, which are generally purchased in the autumn, or at the beginning of winter, and the seeds taken out of them by throwing them into hot water, and treating them like those of pinaster. They are frequently sown in pots in the course of the winter, and preserved in a frame, and kept

1788. *P. Pinea.*

1789. *P. Pinea.*

gently moist, till the spring; when most of the seeds will come up, though some will remain in the ground till the second year. Their tardy germination is owing to the thickness of the shell of the seed, which some cultivators break before sowing, though at the risk of injuring the seed. The plants which come up should be transplanted into small pots, after midsummer of the same year, or, at all events, not later than the following spring; and, for two or three years, they should be kept during winter in a frame, quite close to the glass. The plants are very tender for the first two or three years; but in the fourth and fifth years they will endure the open air, in the climates of

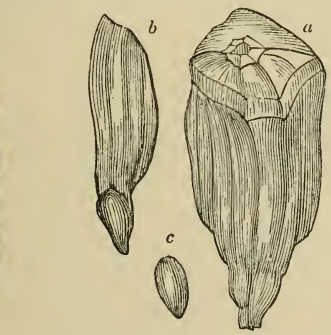
London and Paris, without any protection. The leaves of this species, as well as of several others, have quite a different appearance for the first two years from what they have ever afterwards; they are very glaucous, ciliated on their margins, very short, and very sharp-pointed. During this period, they are single and without sheaths; but afterwards they come out in pairs, with sheaths, these pairs being what are considered by botanists as abortive shoots. The nursery treatment of the stone pine is the same as that recommended for the pinaster, with which the tree is frequently confounded; this species having also very long taproots, which render it necessary to be extremely careful in taking them up for removal: indeed, they should generally be grown in pots; and, when they are turned out of the pots to be planted where they are finally to remain, the greatest care should be taken to stretch out the roots, and to spread them carefully in every direction.

### ♀ 9. *P.* HALEPE'NSIS *Ait.* The Aleppo Pine.

*Identification.* Ait. Hort. Kew., 3. p. 367.; Lam. Pin., ed. 2. 1. t. 7.; N. Du Ham., 5. p. 238.
*Synonymes.* *P.* hierosolymitàna *Du Ham. Arb.* 2. p. 126.; *P.* marìtima prìma *Mathiolus;* Pin de Jérusalème, *Fr.*; Pino d'Aleppo, *Ital.*
*Engravings.* Lamb. Pin., ed. 2., 1. t. 7. (exclusive of the ripe cone, which is that of *P.* Larìcio); the plate of this tree in Arb. Brit., 1st edit., vol. viii.; our *fig.* 1793., to our usual scale; and *figs.* 1790. to 1792.; all from specimens from a tree in the Horticultural Society's Garden.

*Spec. Char., &c.* Leaves in pairs, very slender. Cones pyramidal, rounded at the base, turned downwards, smooth, solitary or in pairs, stalked. (*Lois.*, and obs.) Buds (see *fig.* 1790.) from $\frac{1}{8}$ in. to $\frac{1}{4}$ in. long, and from $\frac{1}{16}$ in. to $\frac{1}{8}$ in. broad; imbricated, roundish, somewhat pointed, wholly without resin; and altogether like those of a pinaster

1790.



*P.* halepénsis. 1791.

1792. *P.* halepénsis.

in miniature. Cones (*fig.* 1792.) from $2\frac{1}{2}$ in. to 3 in. in length; and from $1\frac{1}{4}$ in. to $1\frac{1}{2}$ in. in breadth; invariably turned downwards, so as to form an acute angle with the stem. Footstalks of the cones from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. in length. Scale (*fig.* 1791. *a*) from $1\frac{1}{4}$ in. to $1\frac{1}{2}$ in. long, and $\frac{3}{4}$ in. broad. Seed, without the wing (*c*), from $\frac{1}{4}$ in. to $\frac{3}{8}$ in. in length, and $\frac{3}{16}$ in. in breadth; with the wing (*b*), from 1 in. to $1\frac{1}{4}$ in. in length. Cotyledons about 7. A low tree. South of Europe, Syria, and Barbary, in dry sandy warm soils. Height 20 ft. to 30 ft. Introduced in 1683. It flowers, in the climate of London, about the end of May or the beginning of June, and the cones are ripened in the autumn of the second year.

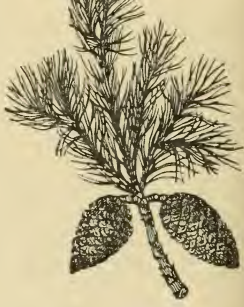
*Varieties.*

♀ P. *h.* 2 *mìnor.* — Cones rather smaller than in the species, but it is scarcely worth keeping distinct. Horticultural Society's Garden.

♃ P. *h.* 3 *marítima.* *P.* marítima *Lamb. Pin.* ed. 2. t. 6.—According to Mr. Lambert's figure, the cones of this variety, in the different forms in which he has given it, are all larger than those of the species. A very doubtful variety.

♃ P. *h.* 4 *genuénsis.* *P.* genuénsis *Cook.*—Does not appear, in foliage and habit, different from the species. The cone we possess is 3 in. long, and $1\frac{1}{4}$ in. in diameter at the broadest end, and regularly pyramidal. The length of the stalk is $\frac{3}{8}$ in.

The leaves are of a deep green, 2 or 3 inches long, most commonly 2 in a sheath, but sometimes, though rarely, 3; and they are so disposed as to form a double spiral round the branches. They never remain longer than two years on the tree; in consequence of which the branches of old trees have a naked appearance, and the head looks open, straggling, and thin. The male catkins are reddish, from $\frac{1}{8}$ in. to $\frac{3}{16}$ in. in length, on short pedicels, disposed in branches of 30 or 40 together. The crest is large, proportionably to the size of the anthers, and is rounded. The female catkins are not, as is usual, placed at the extremity of the shoot of the year, but come out at the side of the shoot, and towards the middle of it; they point outwards during their flowering, and are of a greenish hue, slightly tinged with red. The cones have very strong peduncles of half an inch or more in length; and, as they advance in size, they take a direction almost perpendicularly downwards. The tree grows rapidly when young, acquiring the height of 15 or 20 feet in ten years.



1795. *P.* halepénsis.

### ♃ 10. *P.* BRU'TTIA *Ten.* The Calabrian Pine.

*Identification.* Ten. Fl. Nap. Prod., p. 69.; Synops., ed. alt., p. 66.; Link Abhand., 1837, p. 176.
*Synonymes.* *P.* conglomeràta *Græfer Pl. Exsicc.*, as quoted by Lambert; Kalabrische Kiefer, *Ger.*
*Engravings.* Lamb. Pin., vol. 3. t. 82.; and our *figs.* 1795. and 1796., from Lambert, and from a young tree in the Horticultural Society's Garden, sent there by Mr. Lambert.

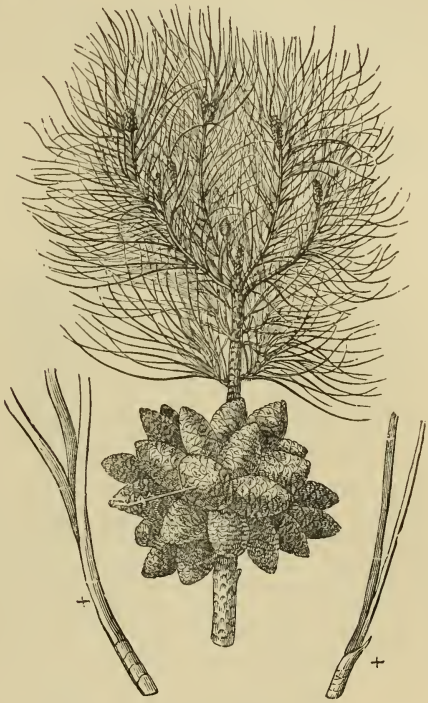
*Spec. Char., &c.* Leaves in pairs, very long, slender, wavy. Cones sessile, crowded, ovate, smooth. Scales truncate at the apex, flattish, umbilicate. (*Lamb.*) Buds (see *fig.* 1794.) $\frac{3}{8}$ in. long, and $\frac{1}{8}$ in. broad; ovate, pointed, whitish, and wholly without resin; centre bud surrounded by three smaller buds. Leaves from $3\frac{1}{2}$ in. to 4 in. long on the young plant in the Horticultural Society's Garden; but above 6 in. long in Mr. Lambert's figure. Sheaths, in both, less than $\frac{1}{2}$ in. in length. According to Link, a lofty tree, vying with *P.* Larício. Calabria, on mountains, 4000 ft. to 5000 ft. above the level of the sea. Height 70 ft. to 80 ft. sometimes 100 ft. Introduced in 1836.

1794.

Leaves in twos, rarely in threes, very long, slender, glabrous, wavy, spreading, about 9 in. long; light green, canaliculate above, convex beneath, serrulate on the margin, terminated by a small conical callous mucro; sheaths about $\frac{1}{2}$ in. long, persistent, of an ash-brown colour, membranaceous, entire round the tops, guarded at bottom with a linear-lanceolate, revolute, bright brown, thread-like, ciliated scale (metamorphosed leaf). Cones sessile, generally in clusters, ovate, smooth, brownish, 2 in. to 3 in. long. Cones truncate at the apex, flattish, trapezoidal, umbilicate, smooth, obsoletely 4-angled; umbilicus dilated, depressed, somewhat hollow, ash-coloured. (*D. Don.*) This species is nearly related to *P.* h. marítima, but it is readily distinguished both from it and *P.* halepénsis by its very long wavy leaves, and by its shorter, sessile, clustered cones, with the scales depressed and slightly concave at their apex.

The leaves resemble those of *P.* Larício; but they are more slender, and rather longer; and both species differ essentially in their cones. Sprengel has referred it to *P.* Pináster, not even allowing it the rank of a variety; but, according to Lambert's *Monograph*, the leaves in *P.* Pináster are twice as

1795.



*P.* brúttia. 1796.

stout, straight, and rigid, and disposed in interrupted verticels; and the cones are double the size, with the scales elevated and angular. The tree of *P.* brúttia is said to attain a considerable size, and to yield timber of excellent quality. (*Lamb. Pin.*) H. S.

B. *Natives of North America.*

♃ 11. *P.* BANKS*IA*'*NA* Lamb. Banks's, *or the Labrador*, Pine.

*Identification.* Lamb. Pin., ed. 2., 1. t. 3.; N. Du Ham., 5. p. 234.; Pursh Fl. Amer. Sept. 2. p. 642.

*Synonymes.* *P.* sylvéstris divaricàta *Ait. Hort. Kew.* 3. p. 366.; *P.* rupéstris *Michx. N. Amer. Syl.* 3. p. 118.; *P.* hudsónica *Lam. Encyc.* 5. p. 339.; Scrub Pine, Grey Pine, Hudson's Bay Pine; Ypres, *Canada.*

*Engravings.* Lamb. Pin., ed. 2., 1. t. 3.; Michx. N. Amer. Syl., 3. t. 136.; our *fig.* 1799. to our usual scale of 1 in. to 2 ft.; and *fig.* 1798. of the natural size.

*Spec. Char., &c.* Leaves in pairs, divaricated, oblique. Cones recurved, twisted. Crest of the anthers dilated. (*Smith.*) Bud ¼ in. long, ⅛ in. broad; cylindrical, blunt at the point, whitish, and covered with resin in large particles; central bud surrounded by from three to five smaller buds, as shown in *fig.* 1797. Leaves (see *fig.* 1798.) from 1 in. to 1½ in. in length, including the sheath, which is short, and has three or four rings. Cones from 1½ in. to 2 in. long. Leaves and cones retained on the tree three or four years. Scales terminating in a roundish protuber-

1797

ance, with a blunt point. Seeds extremely small. A low, scrubby, straggling tree. Hudson's Bay, and farther north than any other American pine, where it grows among barren rocks. Height, in America, 5 ft. to 8 ft.; at Dropmore and White Knights, 15 ft. to 30 ft. Introduced in 1735. Flowers yellowish; May. Cones ripe in the November of the second year.

The catkins of both sexes are expanded in May, before those of *P.* sylvéstris; but, as in that species, the cones do not attain their full size and maturity till the November of the second year, and do not open to shed their

1798.

*P.* Banksiàna.

1799.

seeds till the spring of the third year. The cones are commonly in pairs, of a grey or ash colour (whence the American name of grey pine); they are above 2 in. long, and have the peculiarity of always pointing in the same direction as the branches. They are remarkable for curving to one side, which gives them the appearance of small horns. They are extremely hard, and often remain on the trees several years. Plants are raised from imported seeds, when these can be procured; but the species may be inarched, or grafted in the herbaceous manner, on *P.* sylvéstris.

### ♀ 12. *P.* virginiàna *Ait.* The *Jersey*, or poor, Pine.

*Identification.* Ait. Hort. Kew., ed. 1., 3. p. 367., ed. 2., 5. p. 316.; Michx. N. Amer. Syl., 3. p. 129.; Pursh Sept., 2. p. 641.
*Synonymes.* *P.* virginiàna *Du Roi Harbk.* ed. Pott. 2. p. 47.; Pin chètif, *Fr.*
*Engravings.* Lamb. Pin., ed. 2., 1. t. 12.; N. Du Ham., t. 69. f. 1.; Michx. N. Amer. Syl. 3. t. 137.; our *fig.* 1801. to our usual scale, and *figs.* 1800. and 1802. of the natural size, all from Dropmore specimens.

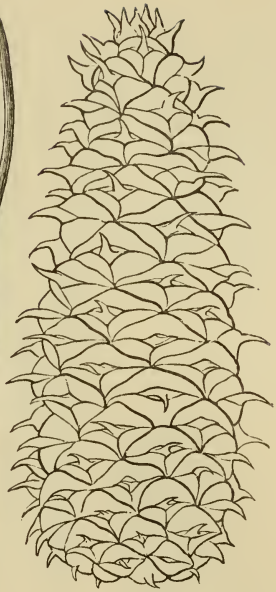
*Spec. Char., &c.* Leaves in pairs. Cones drooping oblong-conical, longer than the leaves. The scales awl-shaped, with prominent prickles. Crest of the anthers short, broad, jagged. Bud (*fig.* 1800.) from $\frac{3}{8}$ in. to $\frac{1}{4}$ in. long, and $\frac{1}{8}$ in. broad; cylindrical, blunt at the point, resinous, brown, and surrounded by three small buds. Cone (*fig.* 1802.) from $2\frac{3}{4}$ in. to $3\frac{1}{2}$ in. long, and from 1 in. to $1\frac{3}{8}$ in. broad. Some of those at Dropmore are of the last dimensions. Scales of a hard woody texture, of a yellowish brown colour, with a sharp woody prickle projecting from each, which is generally straight. Leaves from $1\frac{3}{4}$ in. to $2\frac{3}{4}$ in. long. Sheaths with 3 or 4 rings. Seeds small, cotyledons 6 to 8. Young shoots covered with a fine purplish glaucous bloom. A tortuous-branched low tree, having, at a distance, the general appearance of *P.* Banksiàna; but differing from that species in having many of the more slender branches pendulous, and the wood of the shoots of the current year conspicuously glaucous and tinged with violet. New Jersey to Carolina, on dry barren soils. Height, in America, 30 ft. to 40 ft.; at Dropmore and Pain's Hill, 40 ft. to 50 ft. Introduced in 1739.

1800.

Flowers in May, and the cones are matured in November of the second year.

1801.

P. inops.



1802.

The violet colour of the shoots is peculiar to this species and to *P.* mìtis, among the 2- and 3-leaved pines, but it occurs in the 4-leaved pines, in *P.* Sabini*àna* and *P.* Coúlter*i*. The buds are resinous; and this matter very readily exudes, and incrusts the surface of the sections wherever a branch is cut off. At Dropmore, in warm weather during sunshine, the fragrance of the air in the neighbourhood of this tree is delightfully balsamic.

13. *P.* PU'NGENS *Michx.* The prickly-*coned, or Table Mountain*, Pine.

*Identification.* Michx. Arb., 1. p. 61.; Pursh Fl. Amer. Sept., 2. p. 643.; Lamb. Pin., ed. 2., 1. t. 17.
*Engravings.* Lamb. Pin., ed. 2., 1. t. 17.; Michx. N. Amer. Syl., 3. t. 140.; our *fig.* 1804. to our usual scale, and *figs.* 1803. and 1805. natural size, all from Dropmore specimens.

*Spec. Char., &c.* Leaves short, and thickly set. Cones top-shaped, very large, yellow. Scales with hard incurved prickles, thick, and broad at the base. (*Michx.*) Bud (*fig.* 1803.) from ½ in. to ⅝ in. long, and ¼ in. broad; cylindrical, blunt at the point; brownish, and covered with white resin; generally without small buds. Leaves (*fig.* 1805.) 2½ in. long, including the sheath, which has 4 or 5 rings; the leaves are much broader, and rather shorter and lighter, than those of *P.* (s.) pumílio, and tipped with a sharp point. Cone 3½ in. long, and about 2½ in. broad. Scale woody, and furnished with a strong awl-shaped hook, exceeding ¼ in. in length. Seeds nearly as large as those of *P.* sylvéstris, rough and black. Cotyledons from 6 to 8.

1803.

1804. *P.* púngens.

1805. *P.* púngens.

A tree, with the habit of *P.* sylvéstris, but with a much more branchy head. North Carolina, on high mountains. Height 40 ft. to 50 ft. Introduced in 1804. Flowers in May, and the cones are ripened in November of the second year.

Readily distinguished from *P.* sylvéstris by the young leaves not being glaucous, and by the leaves generally being more straight and rigid, slightly serrated at the margins, and with shorter sheaths. The leaves are also of a paler green, both when young and full grown; so that the tree, when of large size, has nothing of the gloomy appearance attributed to the Scotch pine. The cones are of a light yellowish brown colour, without footstalks; and they are generally in whorls of 3 or 4 together, pointing horizontally, and remaining on the tree for many years. At Dropmore, there are cones adhering to the trunk and larger branches of more than 20 years' growth, giving the tree a very singular appearance; and rendering its trunk easily distinguishable, even at a distance, from those of all others of the pine tribe.

♀ 14. *P.* RESINO'SA *Ait.* The resinous, *or red*, Pine.

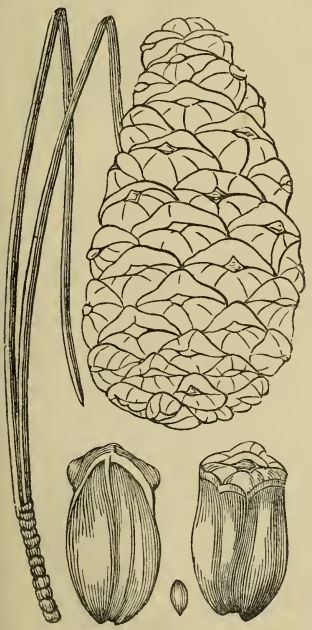
*Identification.* Ait. Hort. Kew., ed. 1., 3. p. 367., ed. 2., 5. p. 316.; Pursh Fl. Amer. Sept. 2. p. 642.
*Synonymes.* *P.* rùbra *Michx. N. Amer Syl.* 3. p. 112.; Norway Pine, *in Canada;* Yellow Pine, *in Nova Scotia;* le Pin rouge de Canada, *Fr.*
*Engravings.* Lamb. Pin., ed. 2, 1. t. 13.; Michx. N. Amer. Syl., 3. t. 134.; our *fig.* 1808. to our usual scale, with a male catkin (*m*) of the natural size, and *figs.* 1806. and 1807. of the natural size, all from Dropmore and White Knights specimens.

*Spec. Char., &c.* Bark red. Leaves in pairs, 4 or 5 inches long. Cones of a reddish brown, ovate-conical, rounded at the base, and half the length of the leaves; scales dilated in the middle, and unarmed. (*Michx.*) Buds

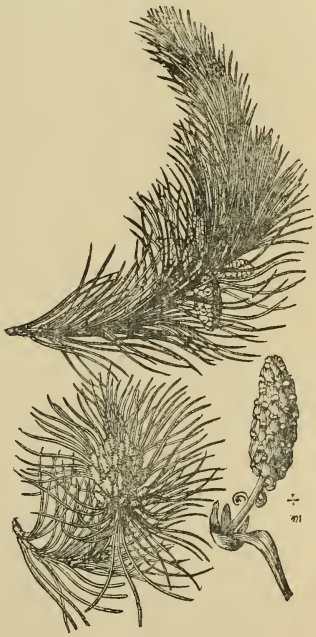
(*fig.* 1806.), in the White Knights specimen, $1\frac{1}{2}$ in. long, and $\frac{5}{16}$ in. broad ; ovate, acuminate, concave on the sides, with a long point, as in *P.* Larício ; but reddish brown, and very resinous. Leaves (*fig.* 1807.) from 5 in. to 6 in. long, straight, stiff, and yellow at the tip; sheath from $\frac{1}{2}$ in. to 1 in. long, white, lacerated, and becoming short and dark with age. Cone 2 in. long, and $1\frac{1}{4}$ in. broad, ovate-conical, brownish red, sessile, or with very short footstalks ; scales $\frac{7}{8}$ in. long, and $\frac{3}{8}$ in. broad. Seeds small ; with the wings $\frac{3}{4}$ in. long. The leaves are thickly set, and inclined towards the shoot, and much lighter and more glaucous than in *P.* Larício and its varieties, in which the foliage is of a darker green than it is in any other species of *P*ìnus. The shoots are much more naked, the whole tree is more open and lighter, and the large and small branches are straighter and more distant, than in *P.* Larício ; the plant is also of much less vigorous growth in British gardens.

1806.

A large tree. Canada, near Lake St. John, and also in Nova Scotia and at Lake Superior; in dry sandy soils. Height, in America, 60 ft. to 70 ft. ; in England, 20 ft. to 30 ft. Introduced in 1756. It flowers in May, and the cones are ripened in the autumn of the second year.



1807.



*P.* resinòsa. 1808.

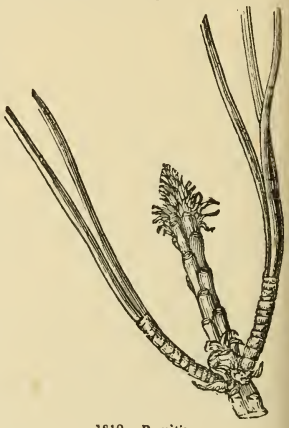
The foliage and the cones, and even the tree altogether, bear a close general resemblance to *P.* Larício ; but the different form and colour of the scales, the lighter tinge of the foliage, and, above all, the much more delicate constitution of the tree, appear sufficient to justify us in retaining it as a distinct species. We are certain that the trees at White Knights are the true *P.* rùbra of Michaux ; because they were raised by Messrs. Loddiges from seeds of *P.* rùbra, sent to them by Bartram of Philadelphia. We have also, since the above was written, received cones and leaves from Mr. M'Nab, jun., which were gathered by him in Upper Canada, in August, 1834, from trees which had been blown down, and which measured upwards of 70 ft. in length.

♃ 15. *P.* MI'TIS *Michx.* The soft-*leaved, or yellow,* Pine.

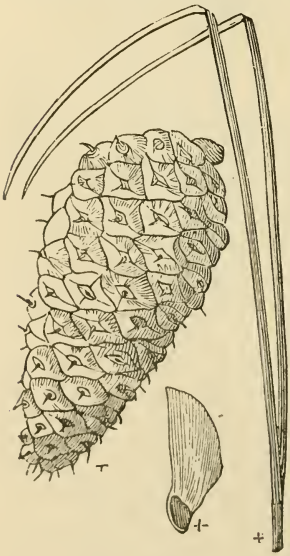
*Identification.* Michx. Fl. Bor. Amer., 2. p. 204.; N. Amer. Syl., 3. p. 120.
*Synonymes.* *P.* variábilis *Pursh Fl. Amer. Sept.* p. 643.; ? *P.* echinàta *Mill. Dict.* No. 12.; New York Pine, Spruce Pine, Short-leaved Pine, Yellow Pine, *Amer.*
*Engravings.* Michx. N. Amer. Syl., 3. t. 137; our *figs.* 1812. from Dropmore, and 1813. from Michaux, to our usual scale; and *figs.* 1809, 1810, and 1811., of the natural size.

*Spec. Char., &c.* Leaves long, slender; hollowed on the upper surface. Cones small, ovate-conical. Scales with their outer surface slightly prominent, and terminating in a very small slender mucro, pointing outwards. (*Michx.*) Buds, on a young tree (*fig.* 1809.), $\frac{3}{16}$ in. long, and $\frac{2}{16}$ in. broad; on an old tree, larger (*fig.* 1810.); scarcely resinous. Leaves (*fig.* 1811. from Michaux) from $2\frac{1}{2}$ in. to 4 in. long, with sheaths $\frac{1}{2}$ in. long; white, lacerated, afterwards becoming dark, slightly ringed. Cone 2 in. long, and 1 in. broad in the widest part. Seeds small; with the wing, $\frac{3}{4}$ in. long. Young shoots covered with a violet-coloured glaucous bloom, like those of *P.* ìnops, by which it is readily distinguished from the *P.* variábilis of Lambert. A beautiful tree, much valued in America for its timber. New England to Georgia, in most pine forests, in various parts of the United States. Height 50 ft. to 60 ft. in America, and also in England; with a trunk of the uniform diameter of 15 or 18 inches, for nearly two thirds of its length. Introduced in 1739. Flowers in May, and its cones are ripened in November of the second year.

1809.


1810. *P.* mìtis.

The branches are spreading on the lower part of the trunk, but become less divergent as they approach the head of the tree, where they are bent towards the body so as to form a summit regularly pyramidal; but not spacious in proportion to the dimensions of the trunk. This narrow conical appearance of the head, as compared with the spreading character of those of other species, seems to have given rise to the name of spruce pine in America. The leaves, according to Michaux, are 4 or 5 inches long, fine and flexible, hollowed on the upper surface, of a dark green, and united in pairs. Sometimes, from luxuriancy of vegetation, three leaves are found in the same sheath on young shoots, but never on old branches. The *P.* variábilis of Lambert's *Pinus*, which is made a synonyme of this species by Pursh, is unquestionably a totally different plant from


1811. *P.* mìtis.

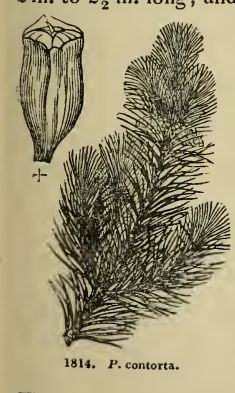
1812. *P.* mìtis.

the *P.* mìtis of Michaux; being without the violet-coloured glaucous bloom on the young shoots; having rigid leaves, generally in threes; and a cone with very strong prickles, like that of *P.* Tæ'da, to which species we have referred it. The only plants that we know which answer to Michaux's description of *P.* mìtis are at Dropmore, where they are readily known by the violet-coloured glaucous bloom on the young shoots, and by the leaves being almost all in twos; at the same time, it is proper to mention that the leaves there, though soft and slender, are much shorter than those in Michaux's figure. The name applied to this species at Dropmore is *P.* variábilis. There is also a plant at Dropmore named *P.* mìtis; but it is wholly with three leaves; and, as far as we can ascertain (the tree not having yet borne cones), it belongs either to *P.* serótina, or to some variety of it. The description given by Miller of *P.* echinàta, as having finely elongated leaves, and a cone with very slight slender prickles, agrees perfectly well with this species, as described by Michaux; and not at all with Mr. Lambert's *P.* variábilis, which he describes as having leaves only 2 in. long, and cones with scales having "thorny points of a strong woody texture projecting from them."

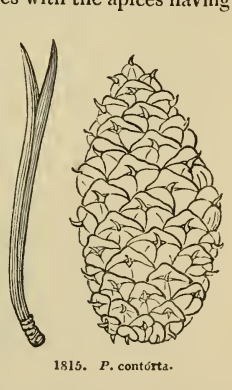
1813. *P.* mìtis

♀ 16. *P.* CONTO'RTA *Douglas.* The twisted-*branched* Pine.

Buds roundish, with a blunt point, covered with resin, and brown. Leaves 2 in a sheath, 2 in. long; sheath very short, imbricated, black. Cones from 2 in. to 2½ in. long; and from ¾ in. to 1 in. broad; scales with the apices having a depressed lateral rib, terminating in a blunt point, furnished with a caducous mucro. The shoots are regularly and closely covered with leaves, much in the same manner as those of *P.* (s) pumílio, to which the specimen sent home by Douglas, in the Horticultural Society's herbarium, bears a general resemblance. This pine was found by Douglas in North-west America, on swampy ground near the sea coast; and, abundantly, near Cape Disappointment and Cape Lookout.



1814. *P.* contorta.



1815. *P.* contórta.

*Fig.* 1814. to our usual scale, and *fig.* 1815. of the natural size, are from the specimens in the Horticultural Society's herbarium.

♀ 17. *P.* TURBINA'TA *Bosc.* The Top-shaped-*coned* Pine.

Leaves 2 in a sheath, slightly glaucous, scarcely 1 in. long. The buds are very small, reddish, fringed, and not resinous. The cones are in whorls from 2 to 5 together, sharply pointed, longer than the leaves, with the scales almost square, and not pyramidal. Bosc thinks that it is probably a native of North America; but his description is taken from a tree in the garden of the Petit Trianon, about 40 ft. high, the only one he had seen. He adds that its general appearance resembles that of *P.* mìtis; but it differs in its leaves being much shorter, and its cones being without spines.

## § ii. *Ternàtæ.* — *Leaves 3 in a Sheath.*

### A. *Natives of North America.*

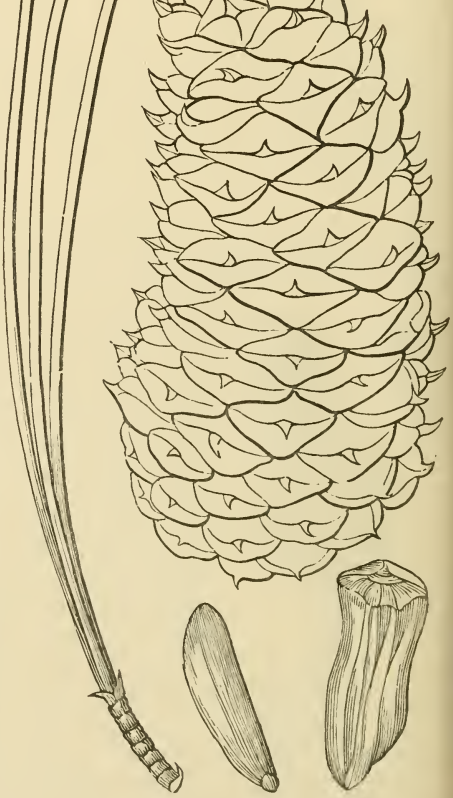
♃ 18. *P. Tæ'da L.* The Frankincense, *or Loblolly,* Pine.

*Identification.* Lin. Sp. Pl., 1419.; Michx. N. Amer. Syl., 3. p. 155.; Pursh Sept., 2. p. 644.
*Synonymes.* *P.* fòliis tèrnis *Gron. Virg.* 152.; *P.* virginiàna tenuifòlia trípilis *Pluk. Alm.* 297.; White Pine, *at Petersburg and Richmond, in Virginia;* Oldfield Pine, *Amer.*; Pin de l'Encens, *Fr.*
*Engravings.* Lamb. Pin., ed. 2., 1. t. 15.; Michx. N. Amer. Syl., t. 143.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; our *fig.* 1819. to our usual scale; and *figs.* 1816. to 1818. of the natural size, from the Horticultural Society, Dropmore, and Syon specimens.

*Spec. Char, &c.* Leaves in threes, elongated. Cones often in pairs, shorter than the leaves; oblong, pyramidal, somewhat truncate at the apex; scales with sharp prickles, turned inwards. Crest of the anthers rounded. Buds, on young trees (see *fig.* 1816.), $\frac{1}{2}$ inch long, and $\frac{1}{4}$ inch broad; pointed, with straight sides; brownish red, and more covered with resin than any other species, except *P*in. Banks*iàna.*

1816.

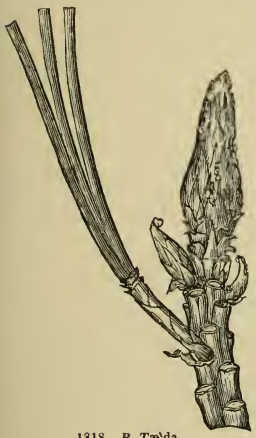
Buds on the full-grown tree at Syon as in *fig.* 1818. Leaves (see *fig.* 1817.) from $5\frac{1}{2}$ in. to $5\frac{3}{4}$ in. long, rigid, bluntly pointed, channeled in the middle, with sheaths from $\frac{7}{8}$ in. to 1 in. long; brown, and faintly ringed. Cones $3\frac{1}{2}$ in. to $4\frac{1}{2}$ in. long, and from $1\frac{3}{4}$ in. to 2 in. broad; scales $1\frac{1}{4}$ in. long. Seed small; with the wing, $1\frac{3}{16}$ in. long. A large tree. Florida to Virginia, in barren sandy situations. Height 70 ft. to 80 ft. Introduced in 1713. In the climate of London, the tree flowers in May, but in Carolina it flowers in April; and the cones ripen in the August of the second year.


1817. *P.* Tæ'da.

*Variety.*

♃ P. T. 2 *alopecuröidea* Ait. Hort. Kew., ed. 2., v. p. 317. The Foxtail Frankincense Pine. — Said to have the leaves spreading, and more squarrose than the species. Pursh is of opinion that this variety is nothing more than the *P.* serótina of Michaux; but Lambert thinks it a variety of *P.* rígida.

The leaves are broad, pointed, flat on the upper surface, and forming a ridge below; of a fine light green, with a sheath long and whitish at first, but becoming short, thick, and brown when old. The cones are about 4 in. in length; and the scales terminate in processes which have the form of an elongated pyramid, somewhat in the manner of *P. Pináster*; but the apex of the pyramid terminates in a thick and sharp prickle, somewhat in the manner of *P.* púngens, and turned upwards. In England, in the climate of London, *P*ìnus *T*æ'da grows vigorously; there being large trees at Syon and at Kew, which, after being 50 years planted, produce shoots of from 9 in. to 1 ft. every year, and ripen cones.

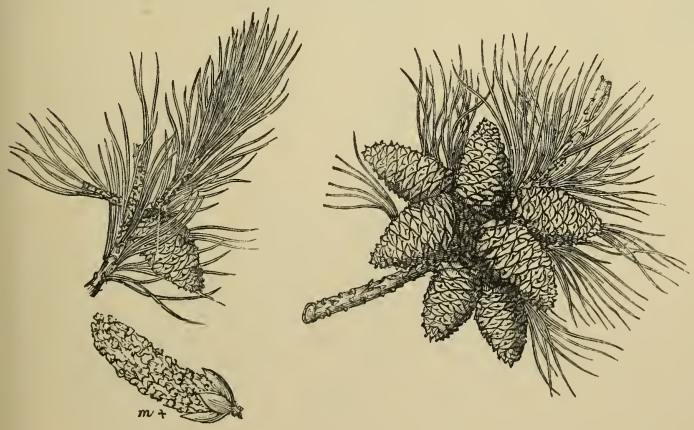


1818. *P. T*æ'da.

1819. *P. T*æ'da.

### ♃ 19. *P.* RI'GIDA *Mill.* The rigid, *or Pitch*, Pine.

*Identification.* Mill. Dict., No. 10.; Michx. N. Amer. Syl., 3. p. 150.; Pursh Sept., 2. p 643.
*Synonymes.* *P. T*æ'da rígida *β Ait. Hort. Kew.* 3. p. 368.; *P.* canadénsis trifòlia *Du Ham. Arb.* 2. p. 126.; ? *P. T*æ'da *α. Poir. Dict.* 5. p. 340.; ? three-leaved Virginian Pine, Sap Pine, black Pine; Pin hérissé, Pin rude, *Fr.*
*Engravings.* Lamb. Pin., ed. 2., 1. t. 16, 17.; Michx. N. Amer. Syl., vol. 3. t. 144.; the plate of this tree in Arb. Brit., 1st. edit., vol. viii.; our *fig.* 1820. to our usual scale; and *figs.* 1821. to 1823. of the natural size, from Dropmore specimens.




1820. *P.* rigida.

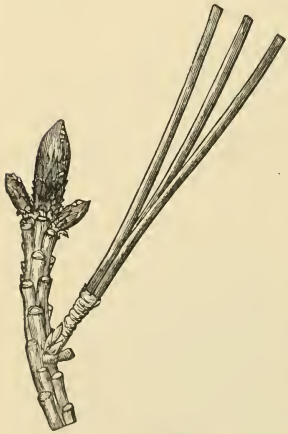
*Spec. Char., &c.* Leaves in threes. Cones ovate-oblong, in threes or fours, much shorter than the leaves; their scales terminated by a rough thorny point. Male catkins elongated, with the crest of the anthers dilated, and

1821.

roundish. Buds, on young trees (see *fig.* 1821.), from $\frac{1}{2}$ in. to $\frac{5}{8}$ in. long, $\frac{3}{16}$ in. broad, pointed, brown, and covered with resin; on the full-grown trees at Dropmore as in *fig.* 1822. Leaves (see *fig.* 1823.) from $3\frac{1}{2}$ in. to $4\frac{1}{4}$ in. long; sheath $\frac{3}{8}$ in. long, white at first, and afterwards becoming darker, but scarcely black. Cones from $2\frac{1}{2}$ in. to 3 in. long, and from $1\frac{1}{4}$ in. to $1\frac{1}{2}$ in. broad; scales $1\frac{1}{4}$ in. long, terminating in depressed quadrilateral pyramids, ending in a prickle, pointing outwards. Seed little more than $\frac{1}{8}$ in. long; but, with the wing, from $\frac{6}{8}$ in. to $\frac{7}{8}$ in. long. Cotyledons, ?. A large tree. New England to Virginia; in light, friable, and sandy soils. Height 70 ft. to 80 ft. Introduced in 1759. It flowers in May, and the cones are produced in the autumn of the second year.

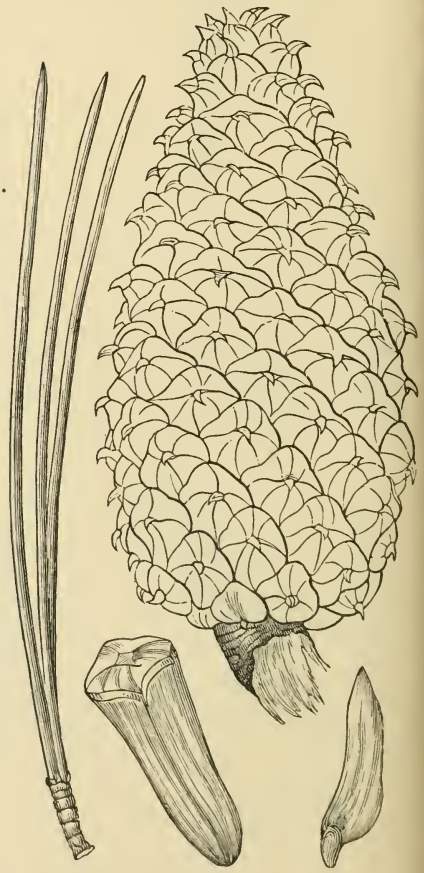
*Variety.* According to Mr. Lambert, *P. T. alopecuröidea Ait.* is a variety of *P.* rígida, characterised by its much shorter and stouter leaves, and its ovate-oblong, much narrower, and aggregated cones. (*Lamb. Pin.*, ed. 2., no. 17.) We have, however, placed it under *P.* serótina.

The pitch pine, in America, Michaux informs us, varies, according to soil and situation, from 12 or 15 feet to 70 or 80 feet in height. "The buds are always resinous; and its triple leaves vary in length from $1\frac{1}{2}$ in. to 7 in. according to the degree of moisture in the soil. The



1822. *P.* rígida.

male catkins are 1 in. long, straight, and winged, like those of the pond pine (*P.* serótina). The size of the cones depends on the nature of the soil, and varies from less than 1 in. to more than 3 in. in length; they are of a pyramidal shape, and each scale is pointed with an acute prickle of about $\frac{3}{16}$ in. long. Whenever these trees grow in masses, the cones are dispersed singly over the branches; and they shed their seeds the first autumn after they are mature; but, on



1823. *P.* rígida.

solitary trees, the cones are collected in groups of four, five, or even a larger number, and will remain on the trees closed for several years. In British gardens, the tree is of as rapid growth as *P. Tæ'da* or *P.* pŭngens.

† 20. *P.* (R.) FRA'SERI Lodd. Cat. ed. 1836. Fraser's Pine.

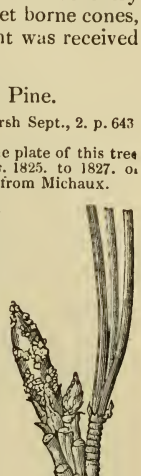
There is a tree bearing this name in the Hackney arboretum, which, in 1840, was upwards of 13 ft. high, with 3 leaves in a sheath, and pendulous branches reaching to the ground. The leaves and young shoots have every appearance of those of *P.* rígida; and, though the tree has not yet borne cones, we have little doubt of its belonging to that species. The plant was received from the Liverpool Botanic Garden in 1820.

† 21. *P.* (R.) SERO'TINA *Michx.* The late, *or Pond*, Pine.

*Identification.* Michx. Fl. Amer. Bor., 2. p. 205.; N. Amer. Syl., 3. p. 148.; Pursh Sept., 2. p. 643
*Synonyme.* ? *P Tæ'da alopecuröidea Ait. Hort. Kew.* ed. 2., 5. p. 317.
*Engravings.* Michx. N. Amer. Syl., 3. t. 142.; Lamb. Pin., ed. 2., 1. t. 18.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; our *fig.* 1826. to our usual scale; and *figs.* 1825. to 1827. of the natural size, from the Horticultural Society and Dropmore specimens, and from Michaux.

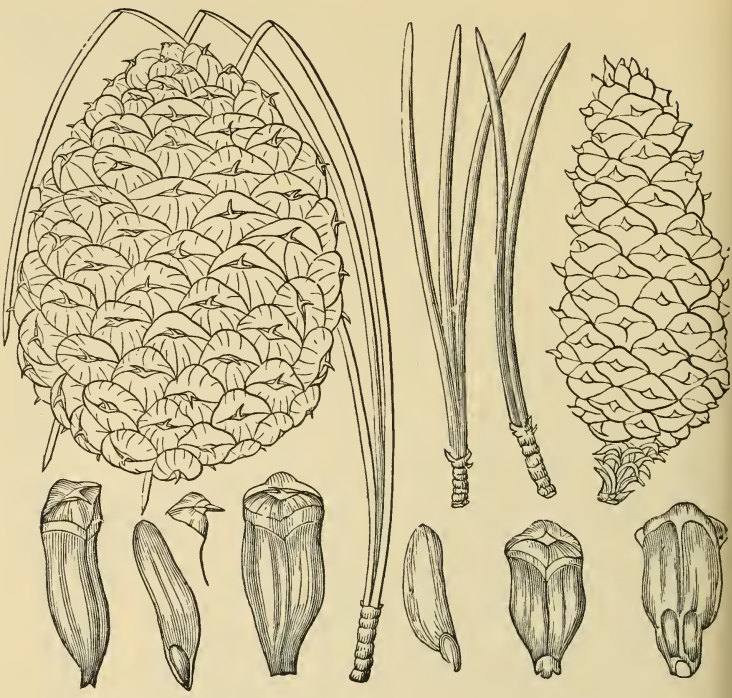
*Spec. Char., &c.* Leaves in threes, very long. Male catkins erect, incumbent. Cones ovate; scales having very small mucros. Buds, on young trees (see *fig.* 1824.), from $\frac{3}{16}$ in. to $\frac{5}{16}$ in. in length, and from $\frac{3}{16}$ in. to $\frac{1}{4}$ in. in breadth; conical, dark brown, and very resinous; buds on old trees as in *fig.* 1825. Leaves (see *fig.* 1827.), in the Dropmore specimens, from 4 in. to 6 in. long; in Michaux's figure, upwards of 8 in. long. Cones $2\frac{1}{2}$ or 3 inches long, and $1\frac{1}{2}$ or 2 inches broad; egg-shaped; scales $\frac{7}{8}$ in. long, and $\frac{3}{8}$ in. broad, with the apex depressed, and terminating in a slender prickle. Seed very small; with the wing, from $\frac{3}{4}$ in. to $\frac{7}{8}$ in. in length. Cotyledons, ?. The cones and leaves of the trees of this name at Dropmore, and the circumstance of there being trees at Pain's Hill with cones of different sizes and shapes, but all on three-leaved pines, and all evidently of the *Tæ'da* family, induce us to believe that *P.* rígida and *P.* serótina are only different forms of the same species. A middle-sized tree. New Jersey to Carolina, on the edges of ponds, and in swamps. Height 30 ft. to 40 ft. Introduced in 1713. It flowers in May, and the cones are ripened in the autumn of the second year, but do not shed their seeds till the third or fourth year, whence the specific name.

1824.


1825. *P.* serótina.

1826. *P.* serótina.

The tree has a branchy trunk, from 15 in. to 18 in. in diameter, and in America it rarely exceeds from 35 ft. to 40 ft. in height. The timber consists chiefly of sap wood, and is of very little use except for fuel. The leaves are generally 5 or 6 inches long, and sometimes more. The male catkins are straight, and about $\frac{1}{2}$ in. long. The cones are commonly in pairs, and opposite to each other; they are about $2\frac{1}{2}$ in. long, nearly 2 in. in diameter, and egg-shaped; the scales are rounded at their extremities, and armed with fine short prickles, which are easily broken off, so that in some cases no vestiges are left of their existence. This, like the other kinds of *P. Tæ'da*, forms an interesting addition to the pinetum, growing freely at Syon, Pain's Hill, and Dropmore



1827. *P.* serótina 1828. *P.* variábilis.

P. *variábilis* Lamb. Pin., ed. 2., 1. t. 14.; and our *fig.* 1828. of the natural size, from Lambert's plate.—Mr. Lambert describes this pine as having the leaves in twos and threes, 2 in. long, channeled, the margins and nerves rough, and the apexes sub-keelshaped; the sheaths short, straight, and but little wrinkled. The cones solitary, recurved, pendulous, narrow-ovate, muricate; spines subincurved, with the scales dilated in the middle. He has only seen two trees of this species in England; one at Pain's Hill, and the other at Kew. (*Lamb.*) The one at Kew no longer exists; and the only trees at Pain's Hill, that we could see, with cones resembling those in Mr. Lambert's plate, had three leaves, and appeared to us to belong to *P. Tæ'da*. The buds in Mr. Lambert's figure appear to be resinous, and are nearly smooth (see *fig.* 1829.), but those of *P.* variábilis at Dropmore, which we feel confident is the *P.* mìtis of Michaux (which Mr. Lambert makes a synonyme of his plant), are scaly, with the scales reflexed, as in *fig.* 1810. in p. 974. The young shoots in Mr. Lambert's plate are green, but in the Dropmore plant they are of the same violet glaucous hue as those of *P.* ìnops; a character so remarkable that it cannot be mistaken, and which, Michaux says, belongs to no other pine of the United States but *P.* ìnops and *P.* mìtis. (*N. Amer. Syl.*, iii. p. 130.) It is found also in *P.* Sabini*àna* and *P.* Coúlteri; but with these species Michaux was not acquainted, and besides they are not natives of the United States. *P.* vari-

1829. *P.* variábilis.

ábilis may therefore be considered as an imaginary species, or as a synonyme to *P.* mìtis.

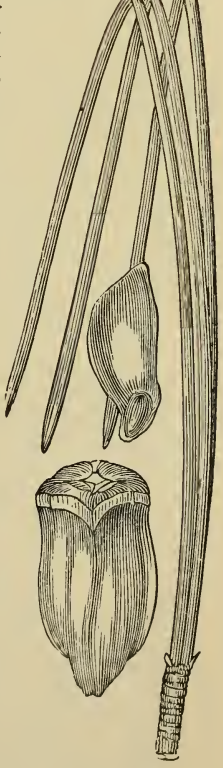
♀ 22. *P.* PONDERO'SA *Doug.* The heavy-*wooded* Pine.

*Identification.* Douglas's specimens in the Horticultural Society's herbarium; Lawson's Manual, p. 354.; Lodd. Cat., ed. 1836; Pin. Wob., p. 44.; Penny Cyc., vol. 18.
*Engravings.* Pin. Wob., t. 15.; our *fig.* 1833. to our usual scale; and *figs.* 1830. to 1832. of the natural size, from the tree in the Horticultural Society's Garden, and Douglas's specimens in the Horticultural Society's herbarium.

*Spec. Char., &c.* Leaves three in a sheath, much longer than the cones, flexible, tortuous, with short sheaths. Crest of the anthers rounded, entire. Cones ovate, reflexed, with the apices of the scales flattened, with a raised process in the middle, terminating in a conical, minute, recurved spine, slightly quadrangular. Buds, in Douglas's specimen, $\frac{7}{8}$ in. long, and $\frac{3}{8}$ in. broad; cylindrical, with straight sides, rounded like a dome at the extremity, but with a prominent blunt point; dark brown, and covered with resin. Buds, on the living tree in the Horticultural Society's Garden (see *fig* 1830.), from 1 in. to $1\frac{1}{8}$ in. long, and from $\frac{3}{8}$ in. to $1\frac{1}{2}$ in. broad; smooth, cylindrical, with a long point; reddish brown, and covered with a fine white bloom, consisting of fine particles of resin, surrounded by two or more smaller buds. Leaves disposed in parallel spirals; in Douglas's specimen (see *fig.* 1832.), from 9 in. to 11 in. long; 3 in a sheath, which is from $\frac{1}{2}$ in. to 1 in. in length, with numerous fine rings; scales of the leaves persistent on the wood, even of two years' or three years' growth. Leaves, on the living plant, from 7 in. to 9 in. long. The cone (see *fig.* 1831.), in Douglas's specimen, is deformed, and very imperfectly developed; it is only 3 in. long, and $\frac{3}{4}$ in. broad. The scales are terminated in flattened processes, scarcely ribbed in any direction. In the centre of the process is a protuberance, large in proportion to the scale, which terminates in a sharp prickle, pointing outwards. Scale 1 in. long, and $\frac{3}{8}$ in. broad; dark brown. Seed $\frac{5}{16}$ in. long, and $\frac{2}{8}$ in. broad; dark brown, with the wing nearly 1 in. in length, and $\frac{3}{8}$ in. in breadth; wings of a yellowish brown. A lofty tree. North America, on the north-west coast. Height 50 ft. to 100 ft. Introduced in 1826. It has not yet flowered in England.

1830.

1831. *P.* ponderòsa.


1832. *P.* ponderòsa.

The plants, when of ten or twelve years' growth, are remarkable for the twisted appearance of their branches which are in regular verticillate whorls. The timber of full-grown trees is said to be so heavy as almost to sink in water. The species is found to be quite hardy, and of rapid growth, both in the climate of London and of Edinburgh. *P.* ponderòsa is a native of the north-west coast of North America, on the banks of the Spokan and Flathead rivers, and on the Kettle Falls of the Columbia, abundantly. It was discovered by Douglas, and sent by him to the Horticultural Society in 1826. A number of plants were raised from seeds in that year, and distributed: the largest of those we believe to be that in the Horticultural Society's Garden. The tree at Dropmore was, in 1837, 9 ft. high.

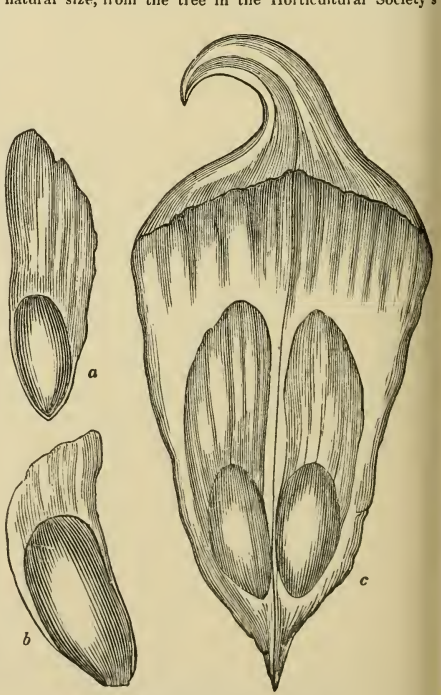
1833. *P.* ponderòsa.

♀ 23. *P.* SABINIA'NA Douglas. Sabine's, *or the great prickly-coned*, Pine.

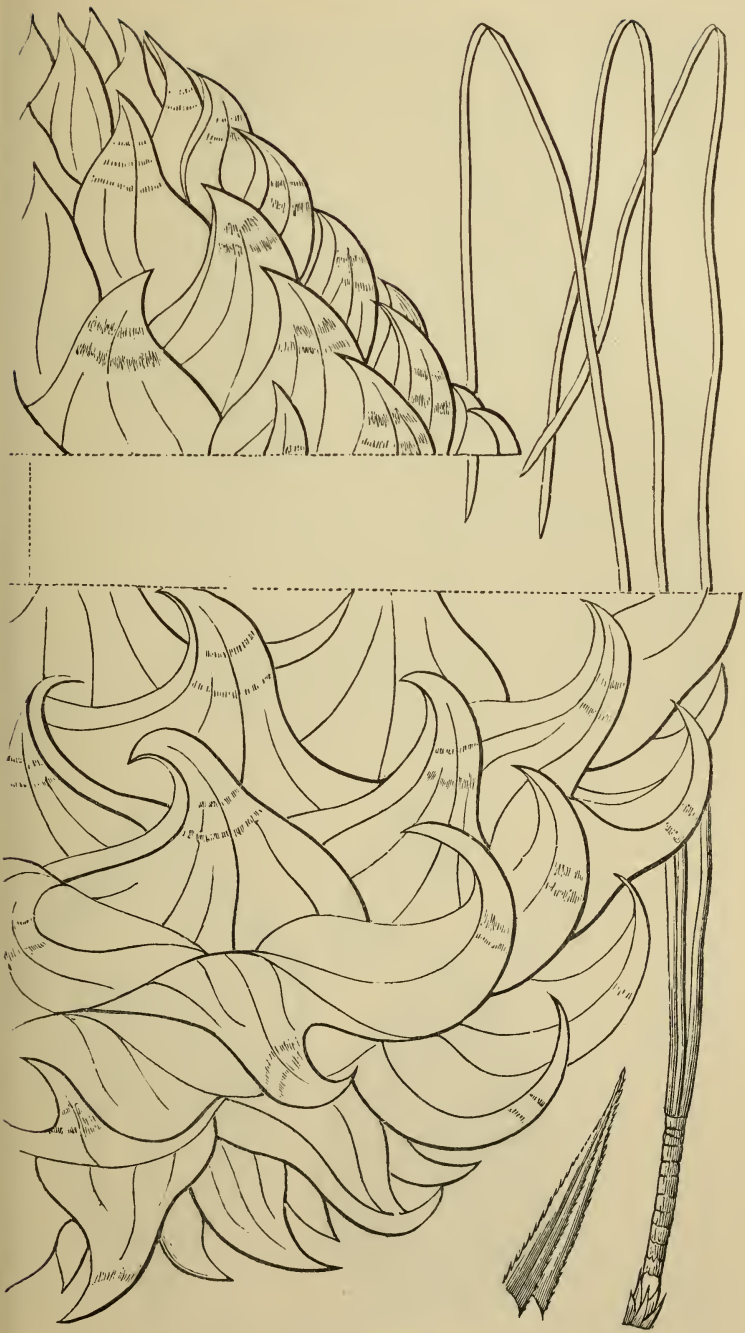
*Identification.* Lamb. Pin., ed. 2., 2, t. 80.; Lawson's Manual, p. 353.; Pin Wob., p. 63.
*Engravings.* Lamb. Pin., ed. 2., 2. t. 80.; Pin. Wob., t. 23. and 24.; our *fig.* 1837. to our usual scale; and *figs.* 1834. to 1838. of the natural size, from the tree in the Horticultural Society's Garden, and Lambert.

*Spec. Char., &c.* Leaves in threes, very long. Cones ovate, echinate, very large. Scales long, awl-shaped, incurved, and spiny at the apex. (*Lamb. Pin.*) Buds, on the tree in the Horticultural Society's Garden (see *fig.* 1834.), nearly 1 inch long, and $\frac{3}{8}$ in. broad; convex on the sides, imbricated, but not covered with resin. Leaves from 10 in. to 1 ft. in length; glaucous in every stage of their growth, flexuose; and, when full-grown, partly bent downwards, as those shown in *fig.* 1837. Sheaths above 1 in. in length, membranaceous, ash-brown, shining, and nearly entire at the top, with numerous rings. Scales of the cones, in the specimens sent home

1834.



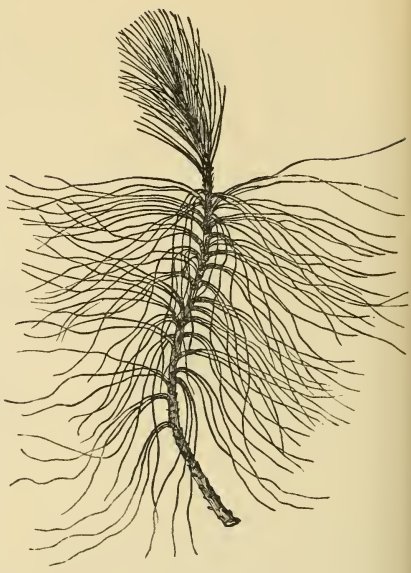

1835 *b*, *P.* Sabiniàna; *a*, *c*, *P* Coúlteri



1836 *P Sabiniàna*

3 R 4

by Douglas, 2 in. long, and $1\frac{3}{4}$ in. broad (see *fig.* 1838.). Seeds (*a* in *fig.* 1838., and *b* in *fig.* 1835.) above 1 in. long, and nearly $\frac{1}{2}$ in. broad, much larger than those of *P.* Coúlteri shown at *a* in *fig.* 1835. ; wing very short. Shoots of the current year covered with violet-coloured bloom, like those of *P.* ìnops, but darker. A large tree. Upper California. Height 40 to 110 ft., rarely 140 ft. Introduced in 1832. Plants have not yet flowered in England. Hort. Soc.



1837. *P.* Sabiniàna.

Douglas describes the leaves as in threes, very rarely in fours ; from 11 in. to 14 in. long ; sharp, round, and smooth on the outside, angular on the inside ; serrated, more widely and conspicuously so towards the point ; erect, but flaccid and drooping during winter. Sheath $1\frac{1}{2}$ in. long, light brown, chaffy, sometimes torn at the top. Stipules lanceolate and rigid, Male and female catkins erect. Flowers appearing in February and March. Cones of a bright green when young ; at the end of the first season, measuring from 6 in. to 8 in. round, and being then of a more rounded form than they are when perfect, in the November of the following year (see *fig.* 1836.) ; when mature, ovate, recurved, pressing on the shoots for support, in clusters of from 3 to 9, surrounding the stem ; remaining on the tree for a series of years ; and from 9 in. to 11 in. long, and from 16 in. to 18 in. round ; some, however, are larger. Scales spathulate, $2\frac{1}{4}$ in. long, having a very strong, sharp, incurved point (see *b* in *fig.* 1838.) with abundance of pellucid resin. Seeds (see *a* in *fig.* 1838.) somewhat oblong, tapering to the base ; flattish on the inside, 1 in.

1838. *P.* Sabiniàna

long, and nearly ½ in. broad; shell thick, hard, brown; wing yellow, short, stiff, and half the length of the seed, which it nearly encompasses; kernel pleasant to the taste. Cotyledons from 7 to 12. The tree does not attain quite so large a size as the other gigantic species of the genus which inhabit the northern and western parts of North America. The largest and most handsome trees inhabit the aqueous vegetable deposits on the western flank of the Cordilleras of New Albion, at a great elevation above the level of the sea, and 1600 ft. below the verge of perpetual snow, in the parallel of 40° N. lat. This species is quite hardy in British gardens, having passed the winter of 1837–8 uninjured.

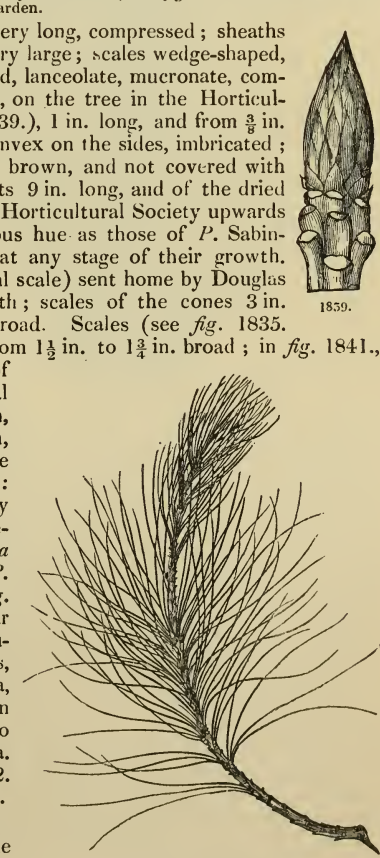
♀ 24. *P.* (S.) Cou'lteri D. Don. Coulter's, *or the great hooked*, Pine.

*Identification.* Don in Lin. Trans., 17. p. 440.; Lamb. Pin., 3. t. 83.; Pin. Wob., p. 67.

*Synonymes.* ? *P.* Sabinàna var. *Hort.*; ? *P.* macrocárpa *Lindl. MS.* Dr. Lindley finds, upon comparing Mr Lambert's specimens of *P.* Coúlteri with those of *P.* macrocárpa, that the identity of the two alleged species is by no means certain; and that "in reality they are probably different." (*Bot. Reg.*, 1840, *M. R.*, No. 133.) The difference in the cones noticed by Dr. Lindley in the passage referred to may, in our opinion, exist without the two kinds being specifically different; but, be that as it may, having no positive evidence before us from which to decide, we deem it better to retain the synonymes as in our first edition, but placing before them the expression of doubt. Young plants were raised at Kew in 1840, from seeds taken from a cone which is supposed to be the true *P.* Coúlteri, for which reason we have indicated it below as a variety.

*Engravings.* Lamb. Pin., 3. t. 83.; Pin. Wob., t 25. and 26.; our *fig.* 1841. from Lambert, *fig.* 1835. from the dried cone in the Horticultural Society's herbarium, and *figs.* 1839. and 1840. from the young plants in the Horticultural Society's Garden.

*Spec. Char., &c.* Leaves in threes, very long, compressed; sheaths ragged. Cones oblong, solitary, very large; scales wedge-shaped, with the apex elongated, thickened, lanceolate, mucronate, compressed, hooked. (*D. Don.*) Buds, on the tree in the Horticultural Society's Garden (see *fig.* 1839.), 1 in. long, and from ⅜ in. to ⅝ in. broad; conical, pointed, convex on the sides, imbricated; the scales of the buds adpressed, brown, and not covered with resin. Leaves of the young plants 9 in. long, and of the dried specimens in the herbarium of the Horticultural Society upwards of 10 in. long; of the same glaucous hue as those of *P.* Sabinàna, but not turned downwards at any stage of their growth. Cones (see *fig.* 1841., to our usual scale) sent home by Douglas 1 ft. in length, and 6 in. in breadth; scales of the cones 3 in. long, and from 1¼ in. to 1½ in. broad. Scales (see *fig.* 1835. *c*) from 3½ in. to 4 in. long, and from 1½ in. to 1¾ in. broad; in *fig.* 1841., at *a*, a front view of the hook of the scale is given, of the natural size. Seed (see *fig.* 1835. *a*) brown, flattish, from ½ in. to ⅝ in. in length, and ⅜ in. in breadth, without the wing; with the wing 1 in. in length: wing stiff, light brown, and nearly encompassing the seed. Cotyledons, ?. The seed of *P.* Sabinàna is much larger than that of *P.* Coúlteri, as shown at *a* and *b* in *fig.* 1835. Shoots of the current year covered with a violet-coloured glaucous bloom, like those of *P.* ìnops, but darker. A large tree. California, on the mountains of Santa Lucia in lat. 36°, at an elevation of 3000 ft. to 4000 ft. above the level of the sea. Height 80 ft. to 100 ft. Introd. 1832. It has not yet flowered in England.

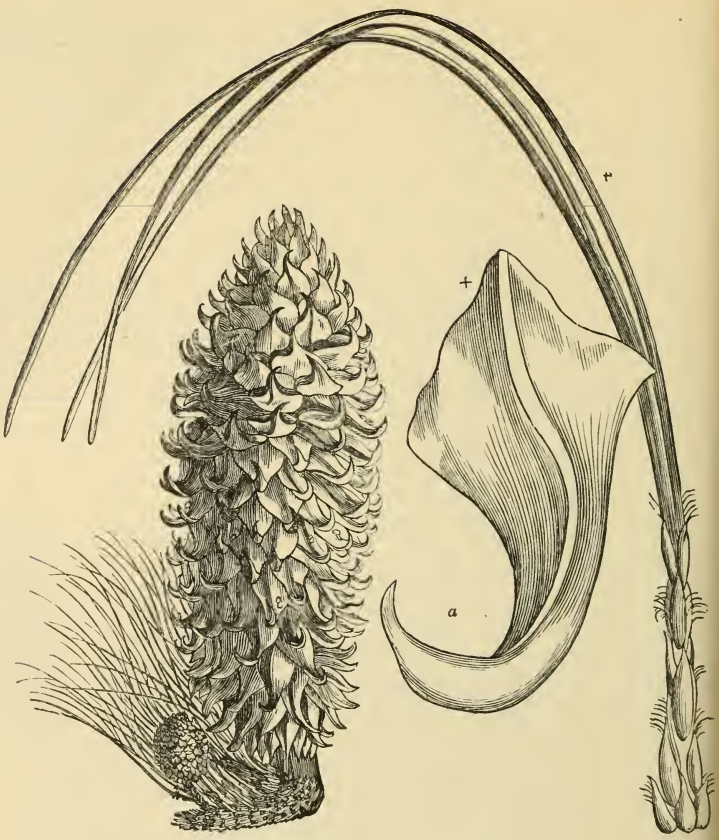


1839.

*Variety.*

♀ P. (*S.*) *C.* 2 *vèra.* — See the synonymes above.

1840. *P* (S.) Coúlteri




1841. *P.* (S.) Coúlteri.

Leaves in threes, rarely in fours or fives, about 9 in. long, incurved, somewhat compressed, mucronate; 2-furrowed above, flattish beneath, slightly serrated on the margin, and on the elevated line along the middle. Sheaths 1½ in. long, about the thickness of a crow-quill, swelling at the tips. Scales of the stipules ovate-lanceolate, acuminate, cartilaginous, bright brown, shining, adpressed; margin scarious, white, thread-like, and torn; with the lower ones shorter, and keel-shaped. Stipules larger, much acuminated, hooded at the base, callous, indurated, and persistent. All the cones large, conical-oblong, 1 ft. and more in length, 6 in. in diameter near the middle, and weighing about 4 lb. Scales wedge-shaped, elongated at the apex, lanceolate, mucronate, compressed on both sides, obsoletely quadrangular, incurved and hooked, very thick, indurated, smooth, shining, brownish, acute at the margin, 1 in. to 3 in. long; the lower ones longer, deflexed, and spreading. (*Lamb.*) Its leaves are broader than those of any other pine. In its general appearance, it resembles *P.* Sabini*ànа*; but it is readily distinguished from that species by the upright character of its foliage. Both species have the buds of the same form and colour; the leaves of the same beautiful glaucous hue in every stage of their growth; the young shoots covered with a violet glaucous bloom, like those of *P.* ìnops and *P.* mìtis; and both retain their leaves till the summer of the third year. The colour and form of the seeds in the two kinds are

exactly the same; but the larger cone has the smaller seeds. To us it appears that they are only varieties of one species; but, if they are so, they are as well worth keeping distinct as any species whatever. They may, indeed, be described as of surpassing beauty; and, what adds greatly to their value, they appear to be quite hardy.

### ♇ 25. *P.* AUSTRA'LIS *Michx.* The southern Pine.

*Identification.* Michx. Arb, l. p. 62.; N. Amer. Syl., 3. p. 133.; Penny Cyc., vol. 18.

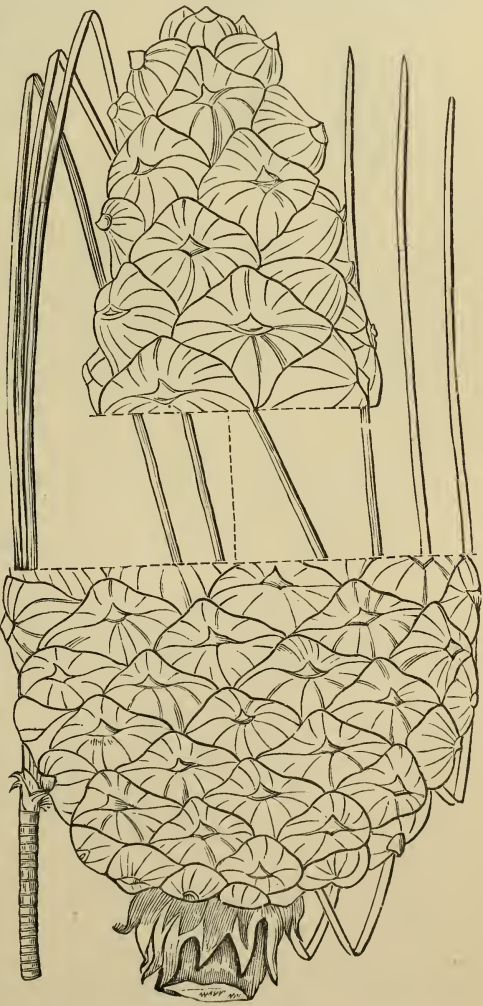
*Synonymes.* *P.* palústris *Willd. Sp. Pl.* 4. p. 499., *Pursh Sept.* 2. p. 644., *Lamb. Pin.* ed. 2. 1. t. 24, 25.; *P.* americàna palústris, &c., *Hort. Angl.* p. 88., *Du Ham. Arb.* 2. p. 126.; *P.* serótina *Hort.*, see Bon. Jard. ed. 1837, p. 976. In *America*, Long-leaved Pine, Yellow Pine, Pitch Pine, and Broom Pine, in the southern states; Southern Pine and Red Pine, in the northern states; and Yellow Pine and Pitch Pine, in the middle states. In *England* and the *West Indies*, by the timber merchants, Georgia Pitch Pine.

*Engravings.* Michx. Arb., l. t. 6.; N. Amer. Syl., 3. t. 141.; Lamb. Pin., ed. 2., 1. t. 24. 25.; Pin. Wob., t. 22.; our *fig.* 1845. to our usual scale, from Abbott; and *figs.* 1842. to 1844. of the natural size, from Michaux and from Dropmore specimens.

*Spec. Char., &c.* Leaves in threes, very long. Male catkins long, cylindrical, of a tawny blue, divergent. Cones very long, tessellated with tumid tubercles, terminated by very small mucros. (*Michx.*) Buds, in the Dropmore specimen (see *fig.* 1842.), rather small in proportion to the termination of the shoot, and buried in

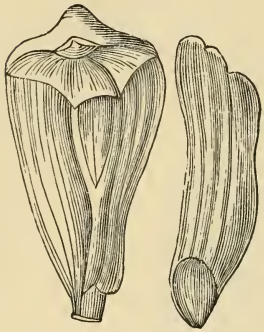
1842. *P.* australis.

leaves. When the leaves are removed, the bud is found to be from $\frac{3}{8}$ to $\frac{5}{8}$ in. long, and from $\frac{5}{16}$ in. to $\frac{6}{16}$ in. broad, with numerous, far-projecting, white, fringed scales; general form conical, and wholly without resin. Leaves (see *fig.* 1843.) from 8 in. to 9 in. in length. Sheath from $1\frac{1}{4}$ in. to 2 in. long, white, membranaceous, and lacerated. The cones, in Michaux's

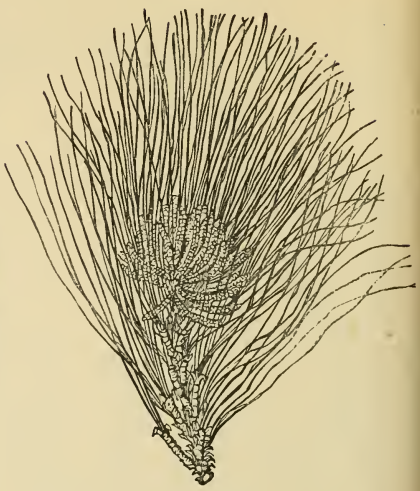


1843. *P.* australis.

figure, 8 in. long, and $2\frac{1}{4}$ in. broad in the widest part. Scale (*fig.* 1844.) from $1\frac{1}{2}$ in. to $1\frac{3}{4}$ in. long, and $1\frac{7}{8}$ in. broad. Seeds oval, from $\frac{3}{8}$ in. to $\frac{1}{2}$ in. in length, $\frac{3}{16}$ in.



1844.



*P.* austràlis. 1845.

broad, whitish; with the wing $2\frac{5}{8}$ in. in length, and $\frac{1}{12}$ in. in breadth, and, as well as the cone, of a rich chestnut brown; in Lambert's figure, the scales and seeds are much smaller. Cotyledons, ?. A large tree in America, but rather tender in England. North Carolina to Florida, near the sea coast. Height 60 ft. to 70 ft. in America, rarely above 10 ft. to 12 ft. in England. Introduced in 1730. The largest plant that we know of is at Farnham Castle, which, in 1834, after being 35 years planted, was 20 ft. high.

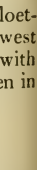
*Variety.*

♀ P. *a.* 2 *excélsa.* *P.* palústris excélsa *Booth.* — Raised in the Floetbeck Nurseries, in 1830, from seeds procured from the north-west coast of North America. The plant, in 1837, was 4 ft. high, with leaves as long as those of *P.* austràlis; and was quite hardy, even in that climate. Possibly a distinct species.

### ♀ 26. *P.* INSÍ'GNIS *Doug.* The remarkable Pine.

*Identification.* Douglas's specimens in the Horticultural Society's herbarium; Pin. Wob., p. 51.
*Engravings.* Pin. Wob., t. 18.; our *fig.* 1847. to our usual scale, and *fig.* 1848. of the natural size, both from Douglas's specimens in the Horticultural Society's herbarium; and *fig.* 1846., from the side shoot of a young tree in the Horticultural Society's Garden.

*Spec. Char., &c.* Leaves three, and occasionally four, in a sheath; much twisted, varying greatly in length, longer than the cones, of a deep grass green, and very numerous. Cones ovate, pointed, with the scales tuberculate. Buds (see *fig.* 1846.) of the side shoots of young plants from $\frac{1}{8}$ in. to $\frac{1}{4}$ in. long, and from $\frac{1}{4}$ in. to $\frac{3}{8}$ in. broad, brown, and apparently without resin; on the leading shoots a great deal larger, and resembling in form, and almost in size, those of *P.* Sabini*ana.* Leaves, in Douglas's specimen, from 3 in. to $4\frac{1}{4}$ in. long; on the plant in the Horticultural Society's Garden, from 5 in. to 7 in. long. A large tree. California. Introduced in 1833, and requiring protection in British gardens, at least when young.



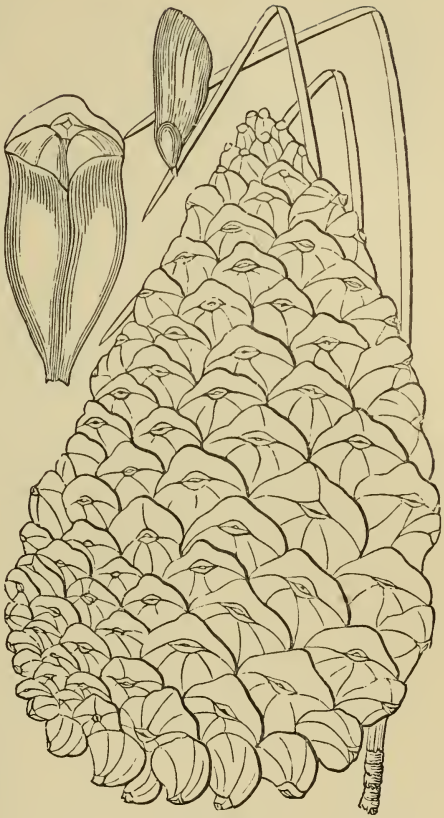
1846.

This pine is well named insígnis; its general appearance being indeed remarkable, and totally different from that of every other species that has yet been introduced. The leaves are of a deep grass green, thickly set on the

branches, twisted in every direction, and of different lengths. The plants in the Horticultural Society's Garden, and in most other places,

1847 *P.* insígnis.

were killed by the winter of 1837–8; but one plant at Elvaston Castle stood that winter without protection. This has also been the case with some plants in the neighbourhood of London.



1848. *P.* insígnis.

### ♃ 27. *P.* CALIFORNIA'NA *Lois.* The Californian Pine.

*Identification.* Loiseleur Deslongchamps, in the N. Du Ham., 5. p. 243.
*Synonymes.* *P.* montereyénsis *Godefroy*; *P.* adúnca *Bosc*, as quoted in *Bon Jard.*; Pin de Monterey, *Bon Jard.* ed. 1837.

*Spec. Char., &c.* Leaves in twos and threes. Cones much longer than the leaves. (*Lois.*) This tree grows in the neighbourhood of Monte-Rey, in California. Its cone is in the form of that of *P. Pináster*, but one third larger in all its parts. Under each of the scales are found two seeds of the size of those of *P. Cémbra*, and of which the kernel is good to eat. A plant of this pine in the Horticultural Society's Garden, named there *P.* montheragénsis, which was received from M. Godefroy about 1829, formed a stunted bush, 3 ft. high, and 4 or 5 feet broad, but it died in the winter of 1837–8. A very doubtful species.

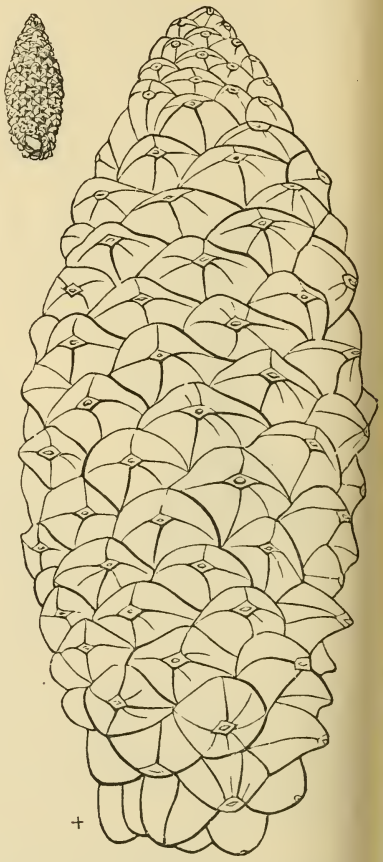
### ♃ 28. *P.* MURICA'TA *D. Don.* The *smaller* prickly-*coned* Pine.

*Identification.* Lin. Trans., 17. p. 441.; Lamb. Pin., 3. t. 84.
*Synonyme.* Obispo, *Span.*
*Engravings.* Lamb. Pin., 3. t. 84.; and our *fig.* 1849.

*Spec. Char., &c.* ? Leaves in threes. Cones ovate, with unequal sides, crowded; scales wedge-shaped, flattened at the apex, mucronate; those at the

external base elongated, compressed, recurved, and spreading. (*D. Don.*) Cones, in Lambert's figure, 2 in. long, and 3 in. broad. A straight middle-sized tree, about 40 ft. high. California, at San Luis, where it is called Obispo (the bishop), growing at the height of 3000 ft. above the level of the sea.

1849. *P.* muricàta.



1850. *P.* tuberculàta.

♀ 29. *P.* TUBERCULA'TA *D. Don.* The tuberculated Pine.

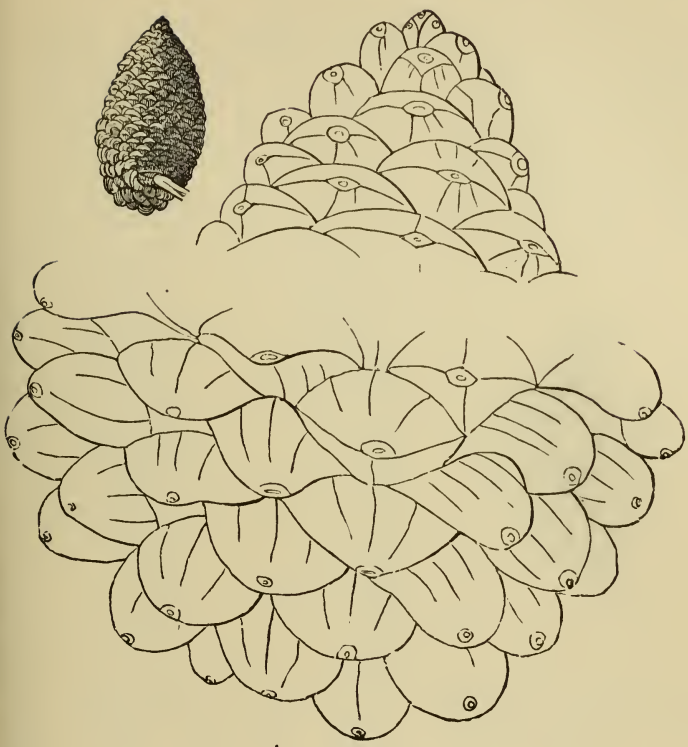
*Identification.* Lin. Trans., 17. p. 442.; Lamb. Pin., 3.
*Engravings.* Lamb. Pin., 3. t. 85.; and our *fig.* 1850.

*Spec. Char., &c.* ? Leaves in threes. Cones oblong, with unequal sides, crowded. Scales quadrangular, and truncate at the apex, with a depressed umbilicus; those at the exterior base larger, elevated, and conical. (*D. Don.*) A tree, about 100 ft. high. California, at Monte-Rey, on the sea shore. Found by Dr. Coulter, along with *P.* radiàta, which it resembles in size and habit, but is essentially distinguished by the form of its cones, which are oblong, 3 in a cluster, of a tawny grey, 4 in. long, and $2\frac{1}{2}$ in. broad.

♀ 30. *P.* RADIA'TA *D. Don.* The radiated-*scaled* Pine.

*Identification.* Lin. Trans., 17. p. 442.; Lamb. Pin., 3.
*Engravings.* Lamb. Pin., 3. t. 86.; and our *fig.* 1851.

*Spec. Char., &c.* ? Leaves in threes. Cones ovate, with unequal sides. Scales radiately cleft, truncate, with a depressed umbilicus; gibbous, somewhat



1851. *P* radiàta.

recurved, and three times as large at their external base. Cones, in Lambert's figure, $5\frac{3}{4}$ in. long, and $3\frac{1}{2}$ in. broad. An erect tree, attaining the height of about 100 ft., with copious spreading branches, reaching almost to the ground. Monte-Rey, in lat. 36°, near the level of the sea, and growing almost close to the beach. Cones in clusters, ovate, about 6 in. long, ventricose at the external base. Scales wedge-shaped, thick, bright brown, shining, dilated at the apex, depressed, quadrangular, radiately cleft; umbilicus depressed; three times larger at the external base; apex elevated, gibbous, somewhat recurved.

## B. *Natives of Mexico.*

31. *P.* TEOCO'TE Schiede et Deppe. The Teocote, *or twisted-leaved*, Pine.

*Identification.* Schiede et Deppe in Schlecht. Linnæa, 5. p. 76.; Penny Cyc., vol. 18.
*Synonymes.* Teocote and Ocote *of the Mexicans.*
*Engraving.* Our *figs.* 1852, 1853, 1854. from specimens sent from Mexico to the Horticultural Society by M. Hartweg, in 1839.

*Spec. Char., &c.* Leaves in threes, compressed, flexuose, scabrous; sheaths about $\frac{1}{2}$ in. long. Cones ovate, smoothish, about the size of those of *P.* sylvéstris, but with the tips of the scales flatter. A tree. Orizaba, in Mexico. Height 40 ft. to 50 ft.; according to Lindley, in *Penny Cyc.*, 100 ft. Introduced in 1839. Cones were distributed by the Horticultural Society, from the seeds in which many plants have been raised; but their degree of hardiness is not yet ascertained.

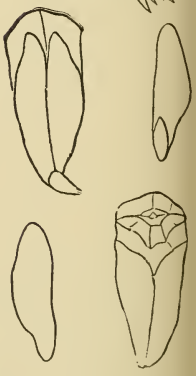
The figure of the cone of *P. Teocòte*, in *Arb. Brit.*, 1st edit. p. 2266., does not exactly agree with the cones sent home by Hartweg, and therefore we have omitted it in this abridgement.

Branchlets very leafy, with a persistent epidermis. Buds imbricated, with lanceolate, acuminate, ciliate, and torn scales. Leaves in threes, erect, rigid, compressed,

1852. *P Teocòte.*

1853.

*P. Teocòte*



1854.

acute, tortuous; light green, bicanaliculate above, slightly convex beneath, very smooth; the intermediate slightly prominent angle, and the margins, crenulated, scabrous. Sheaths cylindrical, about 1 in. in length, persistent, torn on the margin. Cones ovate-oblong, drooping, and smoothish, scarcely 3 in. long. Scales dilated at the apex, somewhat trapezoidal, much depressed; in the young cones always mutic. (*Lamb.*) This, till lately, was a very rare species; there having been no plants of it either at Dropmore or in the Horticultural Society's Garden. Indeed, so far as we are aware, it existed in no collection in Britain, but that of Mr. Lambert at Boyton, till 1840.

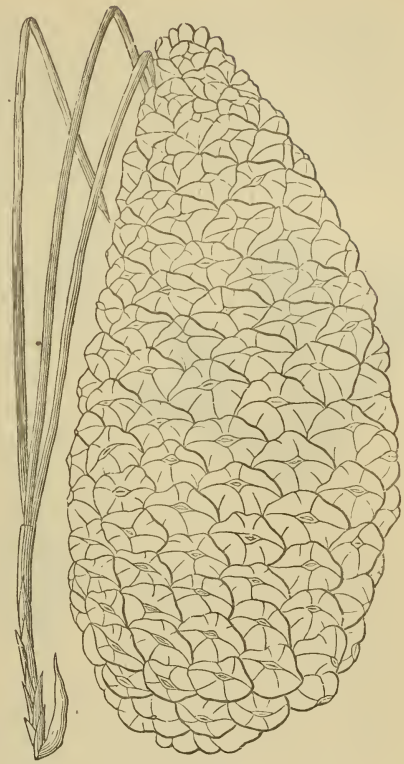
♀ 32. *P.* PA'TULA *Schiede et Deppe MSS.* The spreading-*leaved* Pine.

*Identification.* Lamb. Pin., ed. 1., t. 19.; Penny Cyc., vol. 18.
*Engravings.* Lamb. Pin., ed. 2., l. t. 19.; and *figs.* 1855. and 1856., from Mr. Lambert's figure.

*Spec. Char., &c.* Leaves in threes, very slender, 2-channeled, spreading; sheaths about 1 in. long. Cones ovate-oblong, polished. Branchlets covered with a smooth, lead-coloured, and persistent epidermis. Scales of the bud lanceolate, acuminate, carinate, rigid, thread-like, and ciliate. Leaves in threes, slender, recurved and spreading; soft, light green; deeply bicanaliculate above, convex beneath, marked with many dotted lines; 6 in. to 9 in. long; the intermediate somewhat prominent angle, and the margins, sharply serrated, scabrous. Sheaths cylindrical, 1 in. to $1\frac{1}{2}$ in. long. Apex and margin of the scales thread-like and ciliated. Cones ovate-oblong

smooth, about 4 in. long. Scales dilated at the apex, much depressed, flattish, somewhat trapezoidal; in the young cone, mucronulate. (*Lamb.*) A tree. Mexico, at Malpayo de la Joya, in the cold region. Height 60 ft. to 70 ft. Introduced in ? 1820, and again by Hartweg in 1839, in which year cones were distributed extensively by the Horticultural Society.

1855. *P. pátula.*



1856. *P. pátula.*

*Variety.*

♀ P. *p.* 2 *fóliis stríctis* Benth. Plant. Hart. No. 442., Gard. Mag. 1840, p. 638. — Cones smaller than those of the species, and the leaves straighter. Found by Hartweg near Real del Monte. Horticultural Society's Garden.

♀ 33. *P.* LLAVEÂ'NA Schiede. La Llave's Pine.

*Identification.* Linnæa, vol. xii. p. 488.; Pin. Wob., p. 49.
*Synonymes.* *P. cembróides Zucc. Flora*, 1832. 2. Beibl. 93.; the Mexican Cembra, *Penny Cyc.* vol. 18.
*Engravings.* Our *fig.* 1859. from a specimen of the tree in the London Horticultural Society's Garden; *fig.* 1860. from a cone sent home by Hartweg; and *fig.* 1858., *a* the cone, *b* the seed, from a cone received from M. Otto of Berlin.

*Spec. Char., &c.* Leaves short, narrow, triquetrous, slightly twisted, in thickly set tufts on the branches, of a glaucous green. Branches in regular whorls, smooth, of an ash grey, declining towards the stem. Buds exceedingly small; in form, and in every other respect, like those of *P*ìnus halepénsis: the buds are scarcely $\frac{1}{8}$ in. long, and from $\frac{1}{16}$ in. to $\frac{1}{8}$ in. broad; roundish, with two or three smaller buds. (See *fig.* 1857.) Leaves generally in threes, often in twos, and sometimes in fours, varying from $1\frac{3}{4}$ in. to $2\frac{3}{4}$ in. in length; flat on the upper

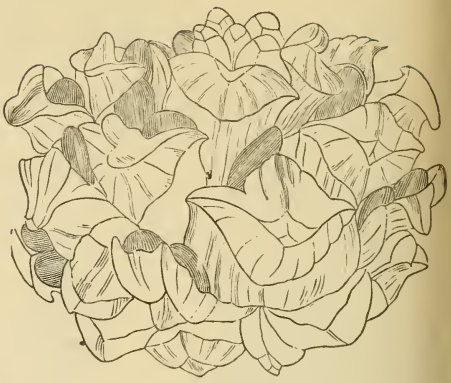
1857.

*a*

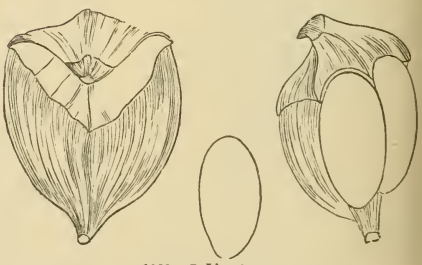
*b*

1858 *P. Llaveâna.*

surface, and cylindrical, with a rib below; sheaths short, and caducous. Cones small, consisting of very few scales, which are about $\frac{1}{2}$ in. long, roundish and obtuse. The scales are keel-shaped below, deeply concave, with



1859. *P.* Llaveàna.



1860. *P.* Llaveàna.

two deep receptacles for the seeds. Seeds without wings, of an egg shape reversed, dark grey or brownish, about 6 or 7 lines long, and about 4 lines thick at the upper end, but diminishing in size towards the lower extremity, which is obtuse. (*Schlecht.* in *Linnæa*, l. c.) A low tree. Mexico, between Z'mapan and Real del Oro, in forests; and also occasionally cultivated in gardens for the seeds, as the stone pine is in Italy, and the neoza pine in the Himalayas. Height 20 ft. to 30 ft. Introduced in 1830, and quite hardy in British gardens.

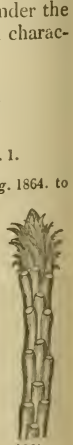
The seeds are edible, and very well tasted; and they are sold in Mexico under the name of Pinones, as those of the stone pine are in Italy under the name of Pinocchi. The young tree is of a very singular and beautiful character, and will doubtless soon find a place in every collection.

C. *Natives of the Canaries, India, Persia, China, and Australia.*

♀ 34. *P.* CANARIE'NSIS *C. Smith.* The Canary Pine.

*Identification.* C. Smith in Buch Fl. Can., p. 32. and 34.; Dec. Pl. Rar. Jard. Gen., 1. p. 1.
*Synonyme.* ? *P.* adúnca *Bosc*, according to Sprengel.
*Engravings.* Dec. Pl. Rar. Jard. Gen., 1. t. 1, 2.; Lamb. Pin., ed. 2., 1. t. 28.; our *fig.* 1864. to our usual scale; and *figs.* 1861. to 1863. of the natural size.

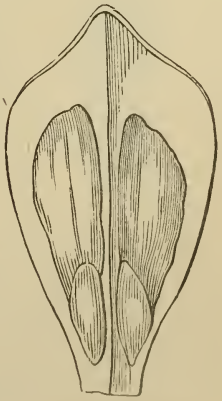
*Spec. Char., &c.* Leaves in threes, very long and spreading, rough. Crest of the anthers round, entire. Cones oblong, tuberculate. (*Lamb. Pin.*) Buds, in the Dropmore specimen (see *fig.* 1861.), from $\frac{3}{16}$ in. to $\frac{1}{4}$ in. long, and from $\frac{2}{16}$ in. to $\frac{3}{16}$ in. broad; dry and scaly, white, and without resin. Leaves (see *fig.* 1862.) from 7 in. to $7\frac{1}{2}$ in. long, and slender; sheaths from $\frac{1}{2}$ in. to $\frac{6}{8}$ in. long, whitish, membraneous, torn at the margin, and brownish at the base. Cone, in Lambert's figure, $5\frac{3}{4}$ in. long, and $2\frac{3}{4}$ in. broad; scale 2 in. long, and $1\frac{1}{8}$ in. broad, terminating in an irregular pyramidal process, at the apex of which is a blunt point, like that of *P. Pináster*. Scales (see *fig.* 1863.) 2 in. long, and $1\frac{1}{8}$ in. broad.



1861.

1862. *P.* canariénsis.

Seeds $\frac{1}{2}$ in. long, and $\frac{3}{16}$ in. broad, flat, pointed at both extremities; with the wing $1\frac{3}{8}$ in. long, and $\frac{7}{16}$ in. broad at the widest part; colour a whitish brown. Cotyledons, ?. The tree throws out abundance of shoots and tufts of leaves from the dormant buds in the trunk and larger branches, more especially at places where any branches have been cut off. A large tree. Teneriffe and Grand Canary, at 5000 ft. to 7000 ft. of elevation. Height 60 ft. to 70 ft. Introduced ? 1759, and requiring protection in British Gardens.



1863. *P.* canariénsis.

This species, *P.* longifòlia, and *P.* leiophýlla bear a close general resemblance, and are all rather tender; but, when the leaves and buds are examined closely, their specific difference becomes obvious. They are all readily propagated by cuttings of the young shoots which are thrown out by the trunks, planted in sand, and covered with a hand-glass, but without bottom heat. They all require protection, even in our mildest winters, and should be placed in a conservatory devoted entirely to half-hardy *Abiétinæ*. Lambert states that this species differs from *P.* longifòlia chiefly in the

much more depressed and straight-pointed tubercles of its cones; those of *P.* longifòlia being hooked. The largest specimen of this pine that we know of is at Dropmore; where, after having been 14 years planted, it was, in 1837, 17 ft. high. It is protected during winter in the same manner as *P.* longifòlia and *P.* leiophýlla. A plant in the Trinity College Botanic Garden, Dublin, raised there about 1815, from seeds collected at Teneriffe, by the late Dr. Smith of Christiania, attained the height of 15 ft. without any protection, and remained uninjured till the severe spring of 1830, when the top was completely destroyed. In the early part of the summer of that year, however, the trunk threw out two or three shoots, a few inches above the collar, and, the dead part above it being cut off, these shoots have grown vigorously ever since; and one of them, having taking the lead, promises to make a handsome plant.

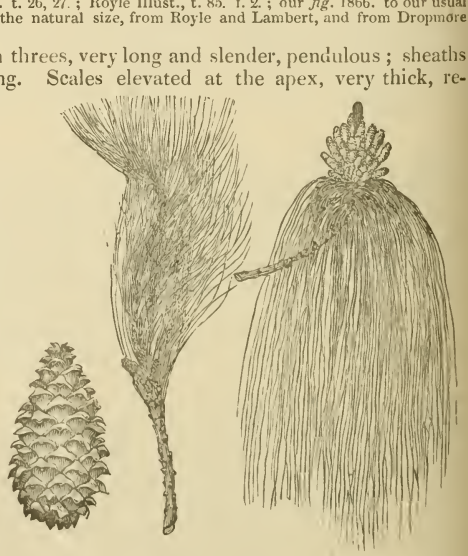
1864. *P.* canariénsis.

♀ 35. *P.* LONGIFO'LIA *Roxb.* The long-leaved *Indian* Pine.

*Identification.* Lamb. Pin., ed. 2., 1. t. 26, 27.; Royle Illust., p. 353.
*Engravings.* Lamb. Pin., ed. 2., 1. t. 26, 27.; Royle Illust., t. 85. f. 2.; our *fig.* 1866. to our usual scale; and *figs.* 1865. to 1868. of the natural size, from Royle and Lambert, and from Dropmore specimens.

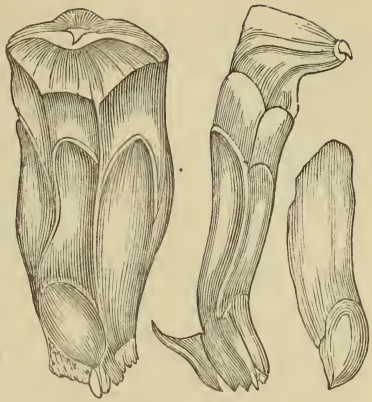
*Spec. Char., &c.* Leaves in threes, very long and slender, pendulous; sheaths long. Cones ovate-oblong. Scales elevated at the apex, very thick, recurved. (*Lamb. Pin.*) Buds, in the Dropmore specimens (see *fig.* 1865.), from 1 in. to $1\frac{1}{4}$ in. long, and nearly $\frac{1}{2}$ in. broad; covered with dry scales at the lower part, and abortive leaves; swelling towards the upper part, and concavely acuminate; white, woolly, and entirely without resin. Leaves (see *fig.* 1868.) 1 ft. in length; sheaths $\frac{3}{4}$ in. long, white, chaffy, and lace-

1865.



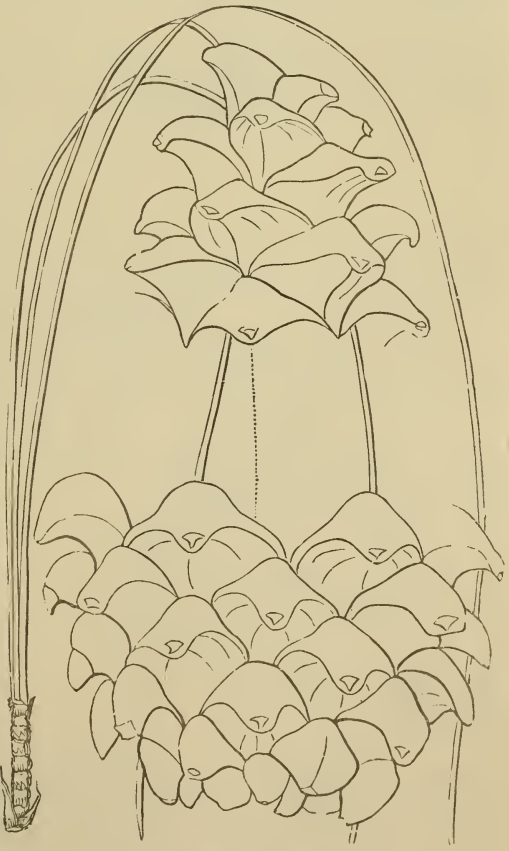
1866. *P.* longifòlia.

rated. Cone (see *fig.* 1868.) from 5 in. to $5\frac{1}{4}$ in. long, and $2\frac{1}{2}$ in. to $2\frac{3}{4}$ in. broad; scale, according to Mr. Lambert's plate (see *fig.* 1867.), from $1\frac{1}{2}$ in. to 2 in. in length. Seed, without the wing, $\frac{1}{2}$ in. long; with the wing, $1\frac{3}{8}$ in. Cotyledons, according to Lawson, about 12. A large tree. Himalayas. Introduced in 1807, and requiring protection in England.



1867. *P.* longifòlia.

*P.* longifòlia is a native of Nepal, on the mountains; and also of the lower and warmer parts of India, where the tree is cultivated on account of its beautiful foliage and graceful habit of growth, but where it never attains the same magnitude as on the Himalayan Mountains. It was introduced into Britain in 1801, and for a long time was treated as a greenhouse plant; it is now found to stand the open air, but not without protection during winter. The largest tree in England is believed to be that at Dropmore. It was, in 1837, nearly 12 ft. high; but it is covered every winter with a portable roof of fern, enclosed in mats, and supported by a wooden frame; the sides being closed in with the same materials, but with two doors opposite each other, to open on fine days, to promote ventilation. Mr. Lawson suggests that the tenderness which is apparent in some individuals of this species may possibly arise from the seed from which they were raised having been produced by trees growing in the warm valleys of Nepal; and that, "by procuring seed from trees at the highest elevation at which they are found to exist, plants might be raised sufficiently hardy to stand the climate of Britain."

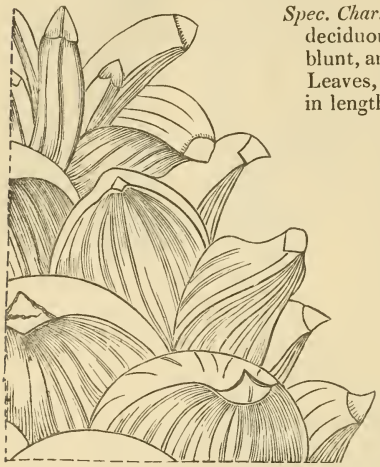


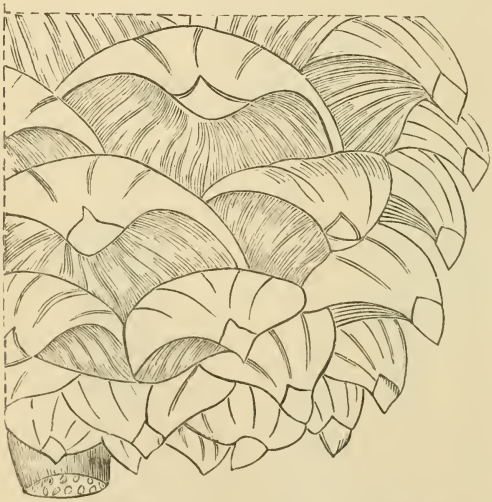
1868. *P.* longifòlia.

♀ 36. *P.* GERARD*IA'NA* Wall. Gerard's, *or the short-leaved Nepal*, Pine.

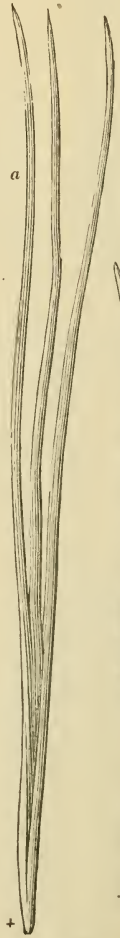
*Identification.* Lamb. Pin., ed. 2., 2. t. 79. ; Royle Illust., p. 353. ; Pin. Wob., p. 53.
*Synonymes.* *P. Neòsa* Govan ; eatable-seeded Pine *of the East Indies ;* ? Chilghòza *Elphinstone*, on the authority of *Royle Illust.* p. 32. ; the Neoza Pine, *Penny Cyc.*, vol. 18.
*Engravings.* Lamb. Pin., ed. 2., 2. t. 79. ; Royle Illust., t. 85. f. 2. ; Pin. Wob., t. 19. ; and our *fig.* 1871., from Royle, to our usual scale ; and *figs.* 1869. and 1870., the cone from Lambert, and the leaves from Royle, both of the natural size.

*Spec. Char., &c.* Leaves in threes, short ; sheaths deciduous. Cones ovate-oblong ; scales thick, blunt, and recurved at the apex. (*Lamb. Pin.*) Leaves, in Royle's figure, from $3\frac{1}{2}$ in. to 5 in. in length ; sheaths imbricate, $\frac{3}{4}$ in. in length.





1869.




*P.* Gerardiàna. 1870.

Cone 8 in. long, and nearly 5 in. broad. Seed $\frac{7}{8}$ in. long, and $\frac{2}{8}$ in. broad ; cylindrical, pointed at both ends, and of a dark brown ; eatable, like those of the stone pine. Wings short. A middle-sized tree. Nepal, on the northern face of the Himalayas, at from 5,000 ft. to 10,000 ft. of elevation. Height 30 ft. to 50ft. Introduced ? 1830. Apparently tender in British Gardens.

Nothing is said respecting the timber of this tree; but the seeds are eaten by the inhabitants of the lower parts of India, in the southern countries. This species was discovered by Captain P. Gerard, of the Bengal Native Infantry; and named in commemoration of him by Dr. Wallich. Cones have been sent to England, by Dr. Wallich and others, at different times; though they are often confounded with those of *P.* longifòlia. The plant named *P.* Gerard*iàna* in the Horticultural Society's Garden has persistent sheaths, and long slender leaves; and is, doubtless *P.* longifòlia; and the same may be said of a number of plants at Messrs. Loddiges's. There are plants of the true *P.* Gerard*iàna* in the Clapton Nursery, under its synonyme of *P. Nèòsa.*

1871. *P.* Gerard*iàna.*

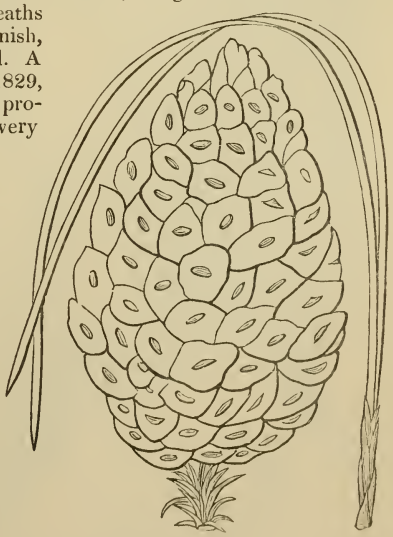
### ♀ 37. *P.* SINE'NSIS *Lamb.* The Chinese Pine.

*Identification.* Lamb. Pin., ed. 2., l. t. 29.; Pin. Wob., p. 39.
*Synonyme.* *P. ?Kesèya* Royle, a native of Nepal. See *Gard. Mag.*, 1840, p. 8. *P.* nepalénsis *Pin. Wob.*; *P.* Cavendish*iàna* Hort.
*Engravings.* Lamb. Pin., ed. 2., l. t. 29.; Pin. Wob., t. 12.; and our *fig.* 1873. to our usual scale, from a specimen of a tree at Redleaf; and *figs.* 1874. and 1872. of the natural size, the cone and leaves from Lambert, and the bud from Redleaf.

1872.

*Spec. Char., &c.* Leaves in threes, rarely in twos, very slender. Male catkins short. Cones ovate; scales truncate at the apex, without any point. Branches tubercled. Leaves squarrose, with stipular scales; twin, or in threes, slender, spreading, semicylindrical, mucronated, serrulated; grass green, 5 in. long; sheaths cylindrical, $\frac{1}{2}$ in. long. Male catkins numerous, somewhat verticillate, $\frac{1}{2}$ in. long. Cones with very short footstalks, ovate, brownish, 2 in. long. Scales thick, woody, tetragonal at the apex, flattened, truncate, mutic. (*Lamb.*) Buds (see *fig.* 1872.), in the Redleaf specimen, from $\frac{4}{16}$ in. to $\frac{5}{16}$ in. in length, and about the same breadth; bluntly pointed, with numerous fine scales of a brownish colour, and wholly without resin. Leaves from 5 in. to $5\frac{1}{2}$ in. in length; three-sided, slender, straight, and about the same colour as those of *P. Pínea.* Sheaths from $\frac{3}{8}$ in. to $\frac{4}{8}$ in. long; brownish, slightly membranaceous, and rigid. A large tree. China. Introd. 1829, or before, and requiring protection in England in very severe winters.

1873. *P* sinénsis.



1874. *P.* sinénsis.

A tree at Redleaf, raised by W. Wells, Esq., from seeds received from China in 1829, was 16 ft. high in 1837, but was killed by the winter of 1837–8.

♀ 38. *P.* TIMORIE'NSIS. The Timor Pine.

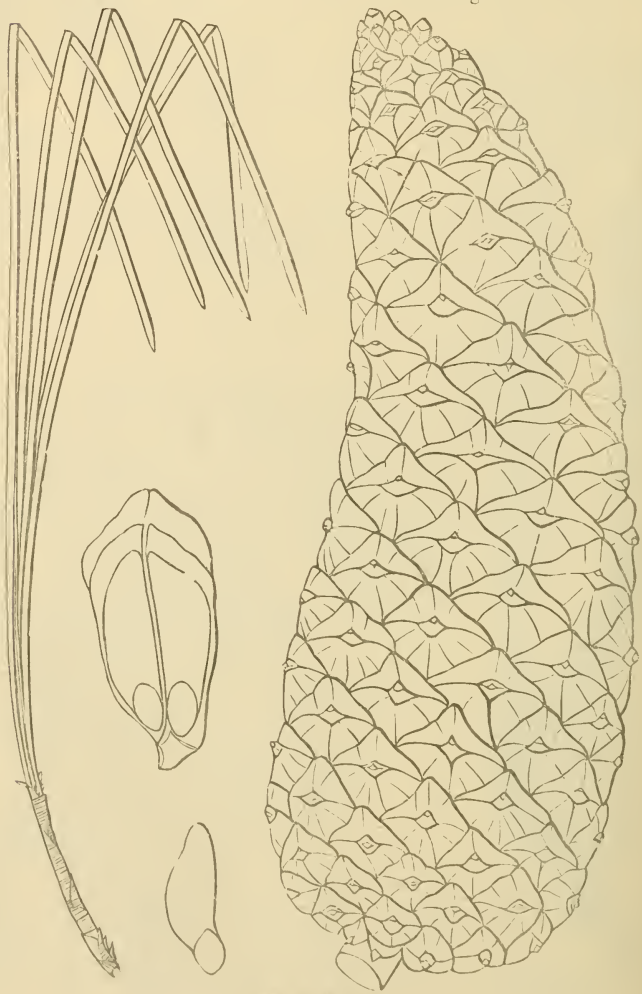
A tree at Boyton, which, in 1837, was 16 ft. high, after being 25 years planted, was raised from seed received by Mr. Lambert from Timor, one of the Molucca Islands. It bears a close general resemblance in the foliage and habit to *P.* longifòlia ; but the leaves (of which there are three in a sheath) are rather more slender, and of a deeper green.

## § iii. *Quìnæ.* — *Leaves* 5, *rarely* 4, *in a Sheath.*

**A.** Cones with the Scales thickened at the Apex.

a. *Natives of Mexico.*

♀ 39. *P.* HARTWE'G*II* Lindl. Hartweg's Pine.



P. Hartweg

*Identification.* Lindl. in Bot. Reg., M. Chron., 1839, No. 95.; Penny Cyc., vol. 18.
*Engravings.* Our *figs.* 1875. and 1876. from specimens sent home by Hartweg.

*Spec. Char., &c.* Leaves in fours; secondary narrowest, primary membranaceous, elongate, scarious. Cones pendulous, oblong, obtuse, aggregate. Scales transverse at apex, depressed in middle, umbonate, and carinate; umbo straight and rounded. Seeds roundish, wedge-shaped, four times shorter than the testaceous wing. (*Lindl.*) A tree. Mexico, on the Campanario, beginning to appear where the oyamel, or *A'bies religiòsa*, ceases to grow, about 9000 ft. above the sea. Height 40 ft. to 50 ft. Introduced in 1839, by cones sent home by Hartweg, from which many plants have been since raised.

1876. *P. Hartwègii.*

The leaves are almost invariably in fours, and are rather more than 6 in. in length.

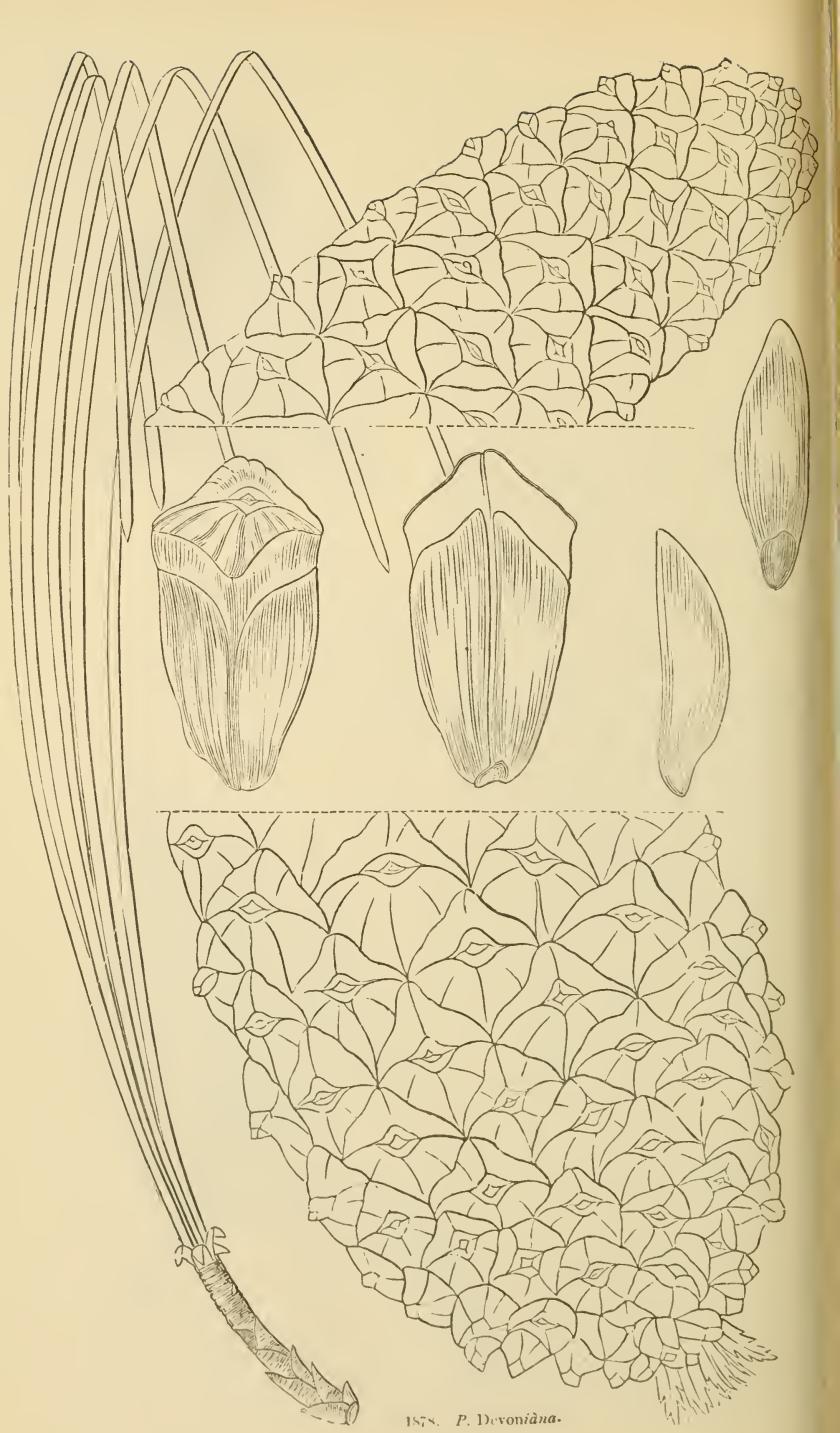
### ♀ 40. *P.* Devonia'na Lindl. The Duke of Devonshire's Pine.

*Identification.* Lindl. in Bot. Reg., M. Chron., 1839, No. 96.; Penny Cyc., vol. 18.
*Synonymes.* Pino blanco, or P. real, *of the Mexicans.*
*Engravings.* Our *figs.* 1877, 1878. from specimens sent home by Hartweg.

*Spec. Char., &c.* Leaves in fives, very long. Branches very thick. Cones pendulous, solitary, curved, obtuse. Scales rounded at apex, rhomboidal with a slightly elevated transverse line, dull pearly grey, abruptly umbonate in middle, obtuse, smooth. Seeds obovate, five times shorter than the blackish wing. (*Lindl.*) A large tree. Mexico, on the Ocotillo, between Real del Monte and Regla. Height 60 ft. to 80 ft. Introduced in 1839, by cones sent home by Hartweg, from which numerous plants have been since raised.

1877. *P. Devonidna.*

The cones are from 9 in. to 10 in. long, curved, about 3 in. in diameter near the base, and tapering till they are not more than $1\frac{3}{4}$ in. broad at the point. The leaves are between 8 in. and 9 in. in length, with sheaths of nearly 1 in. in length. The



1878. *P. Devoniàna.*

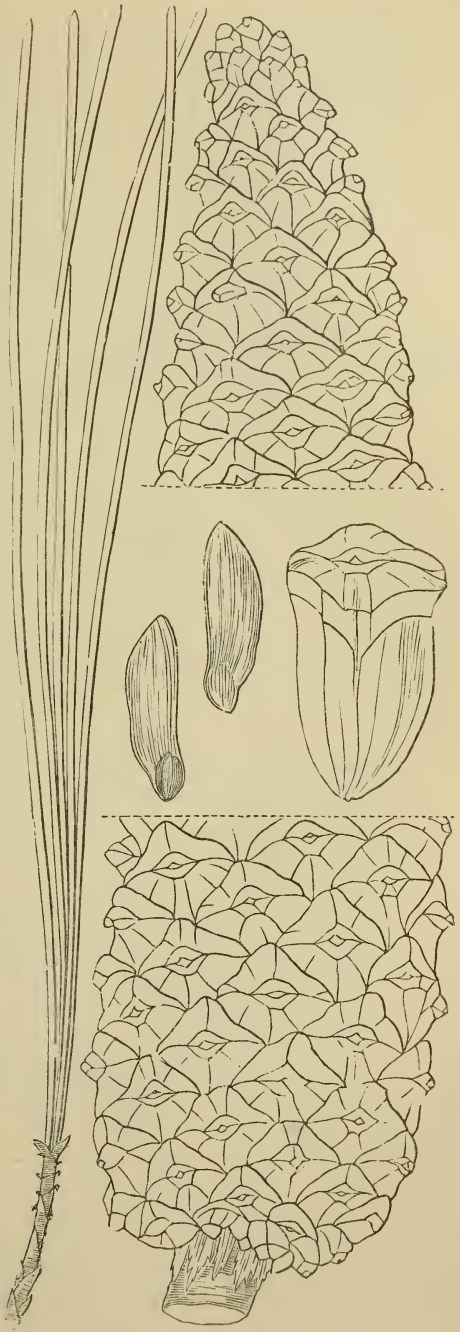
young shoots are very nearly 1 in. in diameter, and look very like those of *Pì*nus palústris. This noble species of pine, worthy of the princely patron of gardening in honour of whom it is named, it is thought will probably prove hardy in British gardens.

? 41. *P.* RUSSELL*IA`NA.* Lindl. Russell's, *or the Duke of Bedford's*, Pine.

*Identification.* Lindl. in Bot. Reg. M. Chron., 1839, No. 97.
*Engravings.* Our *figs.* 1879. and 1880. from specimens sent home by Hartweg.

*Spec. Char., &c.* Leaves in fives, very long. Cones elongate, horizontal, slightly drooping, verticillate, straightish, sessile. Scales rhomboidal at the apex, pyramidal, straight, obtuse. Seeds oblong, four times shorter than their blackish wing. (*Lindl.*) A large tree. Mexico, on the road from San Pedro to San Pablo, near Real del Monte. Height, ?. Introduced in 1839, by cones sent to the Horticultural Society of London by Hartweg, which have been extensively distributed, and from which many plants have been raised.

The cones are about 7 in. long, $1\frac{3}{4}$ in. broad at the base, and they terminate in a point; the scales are a little elevated, so as to form a small pyramid, with a somewhat prominent apex. The leaves are $7\frac{1}{2}$ in. in length, with sheaths of upwards of 1 in. in length. A very noble species, worthy of the house of Russell, and of commemorating the publication of the *Pinetum Woburnense.*



1879. *P.* Russell*iána.*

1880. *P.* Russellìàna.

1881. *P.* Montezùmæ.

♀ 42. *P.* MONTEZU`MÆ Lamb. Montezuma's, *or the rough-branched Mexican*, Pine.

*Identification.* Lamb. Pin., 1. t. 22.; Penny Cyc., vol. 18.
*Synonyme.* *P.* occidentàlis *Kunth* in *Humb. et Bonp. Nov. Gen. et Sp. Pl.* 2. p. 4., *Deppe* in *Schlecht. Linnæa* 5. p. 76.
*Engravings.* Lamb. Pin., ed. 2., 1. t. 22.; and our *figs.* 1881. and 1884. from Lambert.

*Spec. Char., &c.* Leaves in fives, erect, triquetrous; sheaths about 1 in. long, persistent. Cones oblong, about 9 in. long, tuberculate. (*Lamb. Pin.*) A tall tree. Orizaba, and other mountains of Mexico, to the height of 1100 ft.

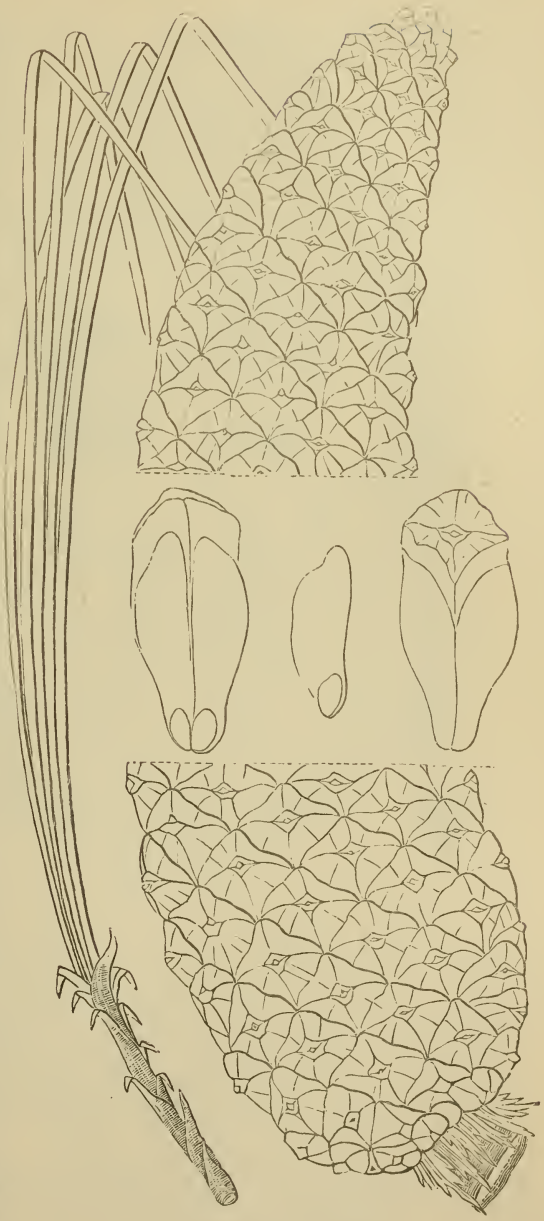
*Variety.*

♀ P. M. 2 *Lindlèyi* (*figs.* 1882. and 1883., from specimens sent home by Hartweg.)—Cones with the scales flattened, or very slightly tuberculated at the tip. Found on the road to Sumate, where it grows from 40 ft. to 50 ft. high. The cones of *P.* Montezùmæ, which were distributed by the Horticultural Society in 1839, differ so much from those of this species in Mr. Lambert's possession, and also from cones sent from Mexico to Mr. Henchman, that we have thought it advisable to keep them distinct. The cones in Mr. Lambert's possession are much tuberculated, as are also those of Mr. Henchman; while those distributed by the Horticultural Society have the tips of the scales almost flat; and therefore we have thought it advisable to mark the Horticultural Society's plant as a variety, till something more is known respecting it.

1882. *P.* Montezùmæ Lindlèyi.

A tall tree. Branchlets covered with thick scabrous bark. Leaves generally in fives, rarely in threes or fours; stipular, persistent, lanceolate, much pointed,

with ciliated and torn scales; erect, waved, somewhat rigid, triquetrous, callous, and mucronate; glaucous green, marked with many parallel dotted lines; slightly bicanaliculate above, and flattish beneath; 6 in. long; angles crenulated, and scabrous: sheaths 1 in. to 1½ in. long, persistent: scales amentaceous, ciliate and torn on the margin, bright brown. Male catkins cylindrical, 1 in. long, with many imbricated, oval, ciliated scales at the base. Appendage to the anthers roundish, convex, coriaceous, membranaceous on the margin, torn, and crenulated. Cones oblong, tubercled, bright brown, thicker at the base, a little attenuated towards the apex, about 6 in. long; scales elevated at the apex, bluntly tetragonal, truncate, very thick. (*Lamb.*) Mr. Lambert says: "Baron Humboldt has referred this species to *P*ìnus occidentàlis *Swartz;* but I have ventured to separate it, as the size of the cones, which may, in general, be relied on as indicating a specific distinction in this genus, differs so much." Those described by Swartz are only 3 in. long, whereas those of *P.* Montezùmæ are more than double that length. Whether this species will prove quite hardy in British gardens is not, as far as we are aware, at present ascertained. Something may doubtless be accomplished with this and other species by grafting on more hardy kinds.



1883. *P.* Montezùmæ Lindlèyi.

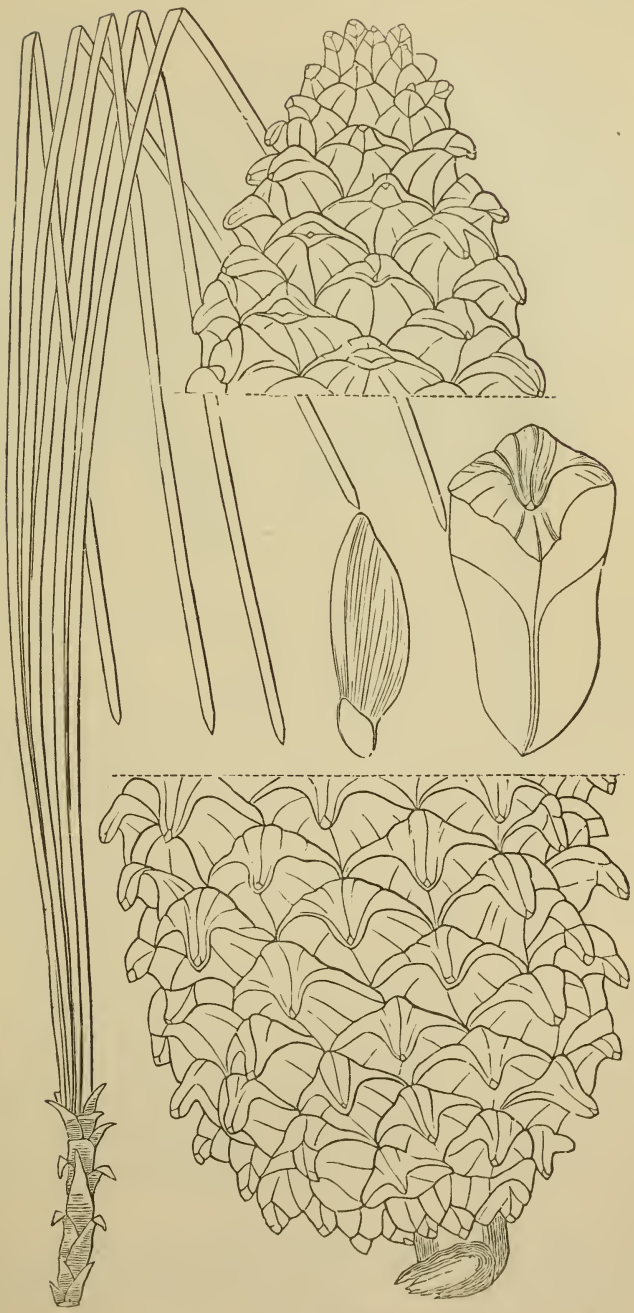
1881. *P.* Montezumæ.

♀ 43. *P.* MACROPHY'LLA *Lindl.* The long-leaved Pine.

*Identification.* Lindl. in Bot. Reg., M Chron , 1839, No. 98.; Penny Cyc., vol. 18.
*Engravings.* Our *figs.* 1885, 1886. from specimens sent home by Hartweg.

*Spec. Char., &c.* Leaves in fives, very long. Cones straight, horizontal, ovate, elongate, solitary. Scales transverse at apex, rhomboidal, runcinate. Seeds sub-rhomboidal, rugose, four times shorter than testaceous wing. (*Lindl.*) A small tree. Mexico, on the Ocotillo, one specimen only being found, of small size. Height ?. Introduced in 1839 by cones sent home by Hartweg, from which plants have been raised.

Differs from *P.* Russell*iàna* in the longer leaves, and shorter and stouter cones, the ends of the scales of which are strongly hooked backwards. They are 14 or 15 inches long, very robust, and resemble those of the *P*ináster. The cones are about 6 in. long, and 3 in. broad at the base; and the scales are hooked backwards like those of *P.* Coúlter*i*, and very hard. The small size of the tree, if that should be its general habit, and the great length of its leaves, would seem to render this a very remarkable species. Young plants have been raised, but whether they will prove hardy is uncertain.



1885 *P.* macrophylla.

1886. *P.* macrophylla.

1887. *P.* Pseudo-Strobus.

† 44. *P.* Pseu`do-*Stro`bus* *Lindl.* The False-Strobus, *or False Weymouth*, Pine.

*Identification.* Lindl. in Bot. Reg., M. Chron., 1839, No. 99.
*Engravings.* Our *figs.* 1887, 1888. from specimens sent home by Hartweg.

*Spec. Char., &c.* Leaves in fives, very slender, glaucescent. Cones oval, verticillate, horizontal. Scales rhomboidal at apex, pyramidal, erect, straightish, with a transverse elevated line. Seeds oval, four or five times shorter than the blackish wing. (*Lindl.*) A tree. Mexico, at Anganguco, 8000 ft. above the sea Height?. Introduced in 1839, by cones sent home by Hartweg, from which many plants have been raised.

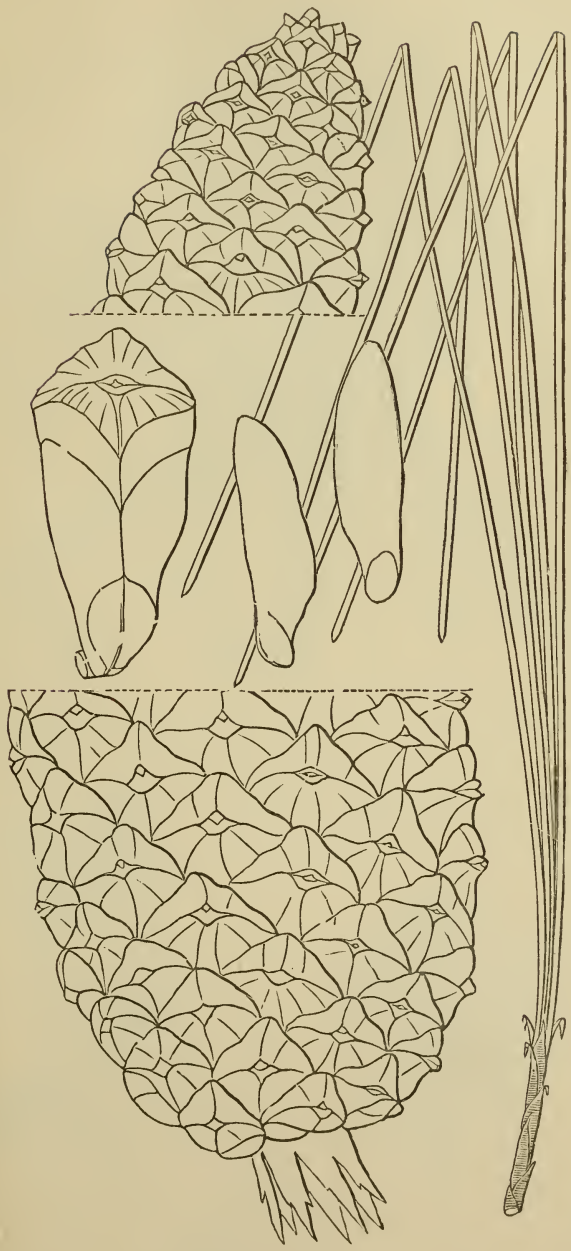
The leaves are five, and glaucous like those of the Weymouth pine; but the cones differ in being thickened at the apex, in the manner of other Mexican pines The cones are between 4 and 5 inches long, by $1\frac{1}{2}$ in. in diameter at the middle, pointed and curved.

† 45. *P.* filifo`lia *Lindl.* The thread-leaved Pine.

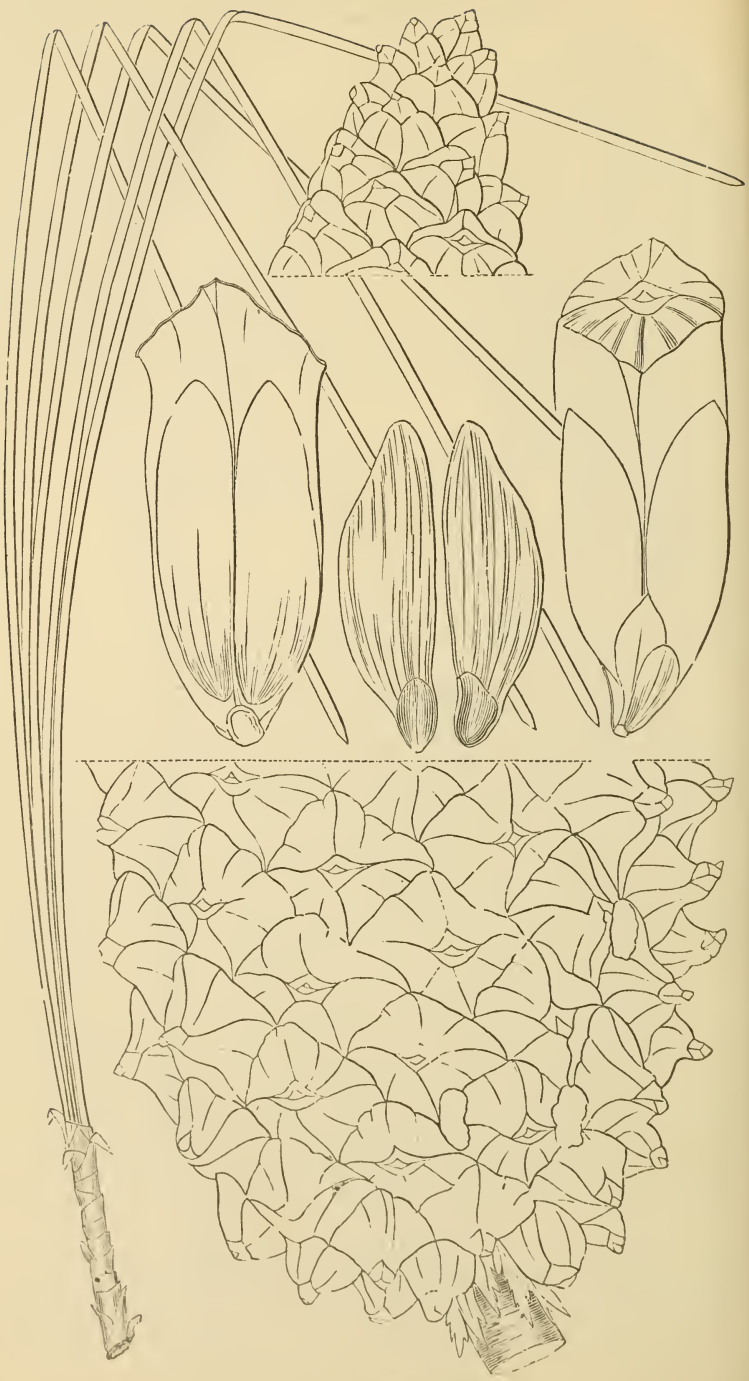
*Identification.* Lindl. in Bot. Reg, 1840, M. R., No. 132.; Gard. Mag., 1840, p. 639.
*Engravings.* Our *figs.* 1889, 1890. in p. 1010, 1011. from specimens sent home by Hartweg.

*Spec. Char., &c.* Branches rigid, thick. Scales of the bud linear, very acuminate, and with very long ciliæ. Leaves in fives, very long ($1\frac{1}{2}$ ft.) acutely triangular; sheaths long, smooth, persistent. Cones elongate, obtuse, 7 or 8 inches in length; scales with lozenge-shaped, depressed, pyramidal apices, and terminating in a callous obtuse mucro. (*Lindl.*) A noble tree, with branches as stout as those of *P.* australis or stouter. Guatemala, on the Volcan del Fuego. Introduced in 1840 by the Horticultural Society. H. S.

The leaves of this species are from 12 in. to 13 or 14 inches in length, which is longer than those of any other pine previously discovered Abundance of plants of it have been raised in the Horticultural Society's Garden, and other places; but it is to be feared that they will not prove hardy in the climate of London.



1888. *P.* Pseùdo-Strōbus.



1881 F. Altiolla.

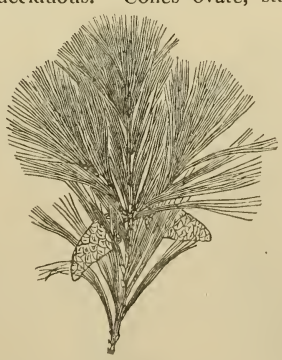
1890. *P.* filifòlia.

♀ 46. *P.* LEIOPHY'LLA *Schiede et Deppe MSS.* The smooth-leaved Pine.

*Identification.* Lamb. Pin., ed. 2., l. t. 21.; Penny Cyc., vol. 18.
*Synonyme.* Ocote chino, *in Mexico.*
*Engravings.* Lamb. Pin., ed. 2., l. t. 21.; and our *fig.* 1891. from Lambert's figure, and *figs.* 1892. 1893. from a specimen sent home by Hartweg.

*Spec. Char., &c.* Leaves in fives, very slender; sheaths deciduous. Cones ovate, stalked.

1891. *P.* leiophylla.

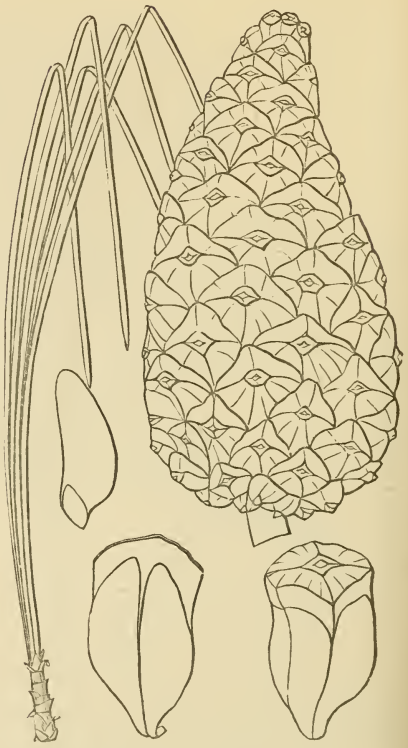


1892. *P.* leiophylla.

Scales depressed, truncate. (*Lamb. Pin.*) Bud closely resembling that of *P.* canariénsis (fig. 1861. in p. 994.). Leaves, in the Dropmore and Boyton specimens, from 5 in. to 6 in. in length, very slen-

der, and pendent, closely set on the branches, and forming large tufts at the extremities of the shoots. The stem and old wood readily emit leaves and shoots from adventitious buds. A large tree, with the habit of *P. Stròbus*, but not the cones of that species. Mexico, between Cruzblanca and Jalacinga, in the cold region, 7000 ft. above the sea. Height 60 ft. to 100 ft. Introduced ? 1800.

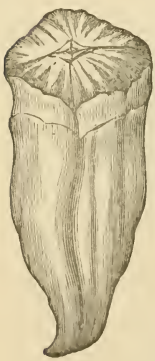
Cones were extensively distributed by the Horticultural Society in 1839. The timber is said to be valuable, but to resist the plane. Mr. Lambert sent seeds to Dropmore, where there are three plants raised from them; one of which was, in 1837, 6 ft. high, and had stood out six years without any protection; and two others 12 ft. and 14 ft. high, which are covered every winter in the same manner as *P.* longifòlia, and which have been more injured than those which were left without protection.



1893. *P.* leiophylla.

♀ 47. *P.* oöca'rpa *Schiede.* The Egg-*shaped*-coned Pine.

*Identification.* Schlecht. in Linnæa, vol. xii. p. 491.; Penny Cyc., vol. 18.
*Engravings.* Our *figs.* 1894. to 1897. from specimens sent home by Hartweg; and *fig.* 1898. from a young plant raised in 1839.

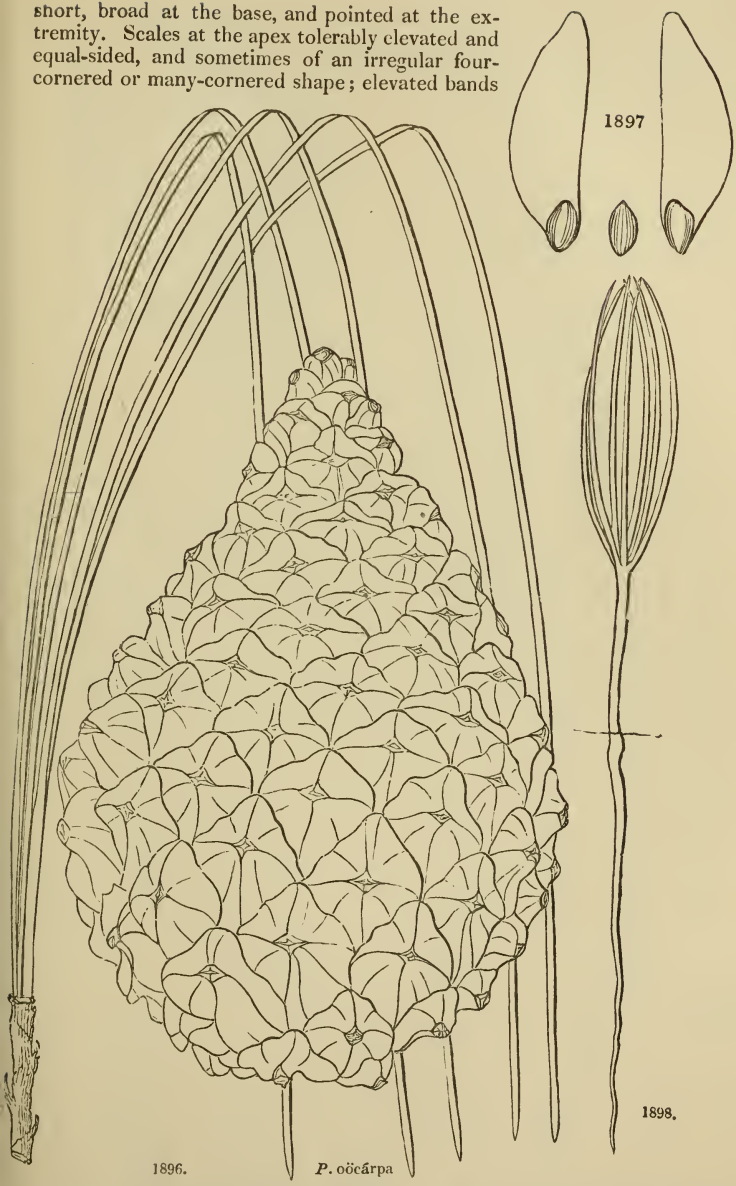


1894. *P.* oöcárpa.

1895. *P.* oöcárpa.

*Spec. Char., &c.* Leaves five in a sheath, from 8 in. to 11 in. long. Cone

short, broad at the base, and pointed at the extremity. Scales at the apex tolerably elevated and equal-sided, and sometimes of an irregular four-cornered or many-cornered shape; elevated bands




run from the middle point to the corners, so that the whole apex of the scale looks slightly pyramidal. Cones $2\frac{1}{4}$ in. to $2\frac{1}{2}$ in. long, and $1\frac{3}{4}$ in. to 2 in. broad. (*Schlecht.*) A tree. Mexico. Height 30 ft. to 40 ft. Introd. 1839, and rather tender in British gardens.

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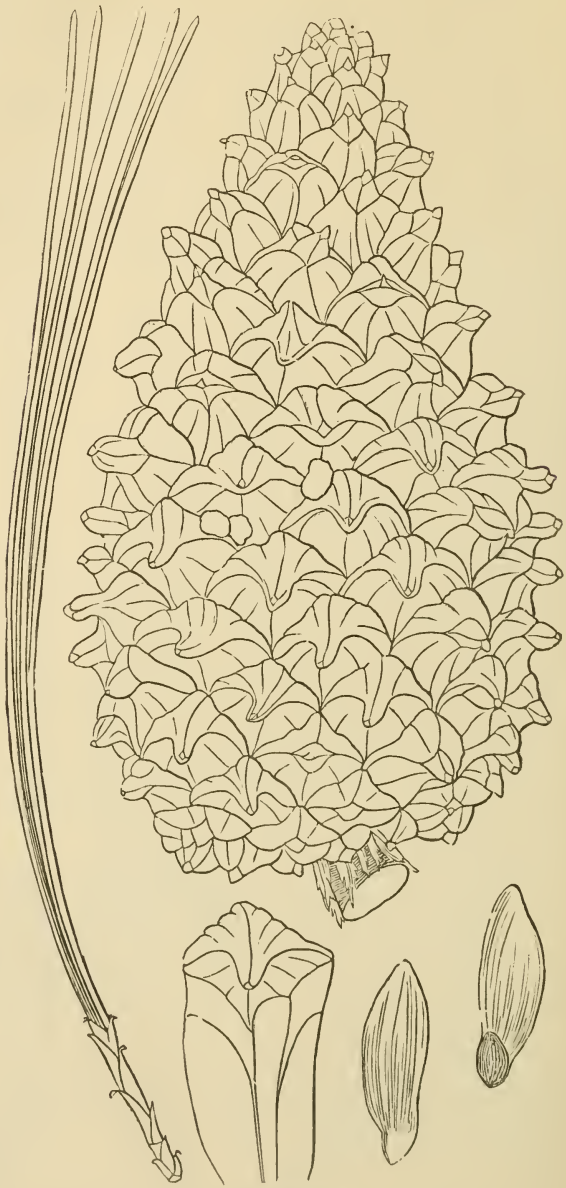
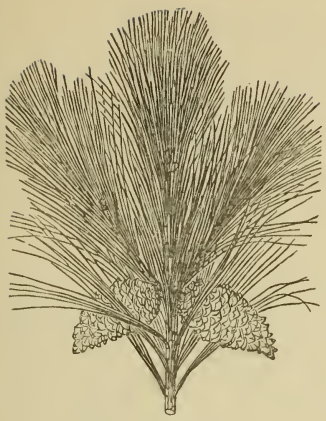
P. *oocarpöìdes* Benth. — Cones distributed by Hort. Soc. in 1841, but whether more than a mere variation of *P.* oocárpa appears to us very doubtful.

## ♀ 48. *P.* APULCE'NSIS *Lindl.* The Apulco Pine.

*Identification.* Lindl. in Bot. Reg. M. Chron., 1839, No. 100.
*Synonyme.* *P.* acapulcénsis *G. Don* in *Sweet's Hort. Brit.* ed. 3. p. 769.
*Engravings.* Our *figs.* 1899, 1900. from specimens sent home by Hartweg.



1899 *P.* apulcénsis.



1900. *P.* apulcénsis.

The short leaves and very glaucous shoots, the ovate cones, covered closely with py amidal elevations, which are sometimes prolonged and contracted in the middle, especially those near the points of the cones, readily distinguish this from all other species. The leaves are 6 in. long. The cones are about 4 in. long, being rather larger than a hen's egg; the backs of the scales are sometimes prolonged into a hook, particularly those nearest the base and the point.

b. *Natives of the West Indies.*

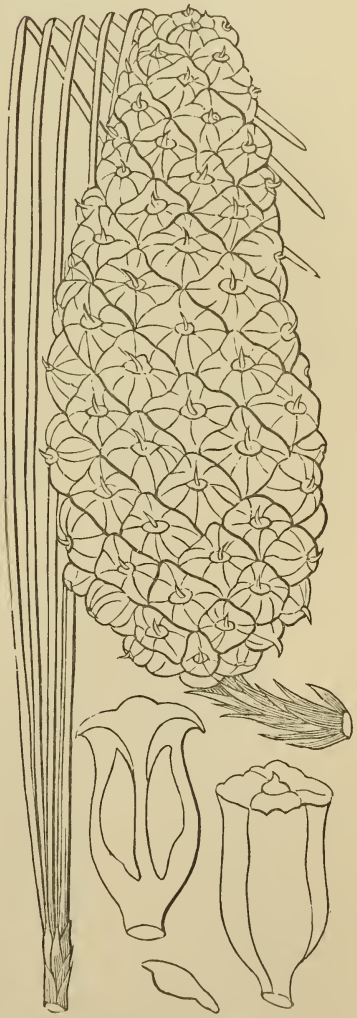
♀ 49. *P* OCCIDENTA'LIS *Swartz.* The West-*Indian* Pine.

*Identification.* Swartz Prod., 103.; H. B. et Kunth N Gen., 2. p. 4.; Linnæa, vol. v. p. 76.; Lamb. Pin., ed. 2., 1. t. 23.
*Synonymes.* *P.* fŏliis quìnis, &c., *Plum. Cat.* 17.; Làrix americàna *Tourn. Inst.* 586.; Ocote, *Mexican.*
*Engravings.* Lamb. Pin., ed. 2., 1. t. 23.; N. Du Ham., 5. t. 72. f. 2.; and our *fig.* 1901.

*Spec. Char., &c.* Leaves in fives, pale green, slender; sheaths persistent. Cones conical, half the length of the leaves; scales thickened at the apex, with very small mucros. (*Lois.*) St. Domingo, in the quarter of Saint Suzanne, on mountains where snow occasionally falls; and where it grows to the height of from 25 ft. to 30 ft., with leaves 6 in. long, of a fine green, and cones somewhat larger than those of *P.* sylvéstris.

A very doubtful species, but we have retained it, as we have done some others of the same kind.

*Spec. Char., &c.* Leaves in fives, slender, short. Branches glaucous. Cones pendulous, verticillate, ovate, acute. Scales rhomboidal, pyramidal, straight, sometimes prolonged and contracted in the middle. Seeds oval, four times shorter than the linear wing. (*Lindl.*) A tree. Mexico, near Apulco, in ravines. Height 50 ft. Introduced in 1839, by cones sent home by Hartweg, from which many plants have been raised.



1901 *P.* occidentàlis

## B. Cones with the Scales not thickened at the Apex.

### a. *Natives of Europe and Siberia.*

### ☤ 50. *P. CE'MBRA* L. The *Cembran* Pine.

*Identification.* Lin. Sp. Pl., 1419.; Pall. Fl. Ross., 1. p. 3.

*Synonymes.* *P.* fòliis quìnis, &c., *Gmel. Sib.* 1. p. 179.; *P.* sativa *Amm. Ruth.* p. 178.; *P.* sylvéstris, &c., *Bauh. Pin.* 491.; *P.* sylvéstris *Cémbro* Cam. Epit. p. 42.; Làrix sempervìrens, &c., *Breyn.* in *Act. Nat. Cur. Cent.* 7. 8.; *P*ìnàster Aleùo, &c., *Bell. Conifer.* p. 20. b. 21.; *Tæ'da* árbor, *Cémbro* Italòrum, *Dale Hist.* 1. p. 47.; Aphernousli Pine, five-leaved Pine, the Siberian Stone Pine, the Swiss Stone Pine; Aroles, *in Savoy;* Alvies, *in Switzerland;* Cembra, *in Dauphiné;* Ceinbrot, Eouve, Tinier, *Fr.*; Zürbelkiefer, *Ger.*; Pino Zimbro, *Ital.*; Kedr, *Russ.* (see *Pall. Fl. Ross.*)

*Engravings.* Pall. Ross., 1. t. 2.; Lamb. Pin., ed. 2., 1. t. 30, 31.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; our *fig.* 1905. to our usual scale, *figs.* 1902. to 1904. of the natural size, all from Dropmore specimens.

*Spec. Char., &c.* Leaves in fives; sheaths deciduous. Cones ovate, erect, about as long as the leaves, and having, when young, the scales pubescent; the wings of the seed obliterated; anthers having a kidney-shaped crest. Buds, in the Dropmore specimens, from $\frac{1}{4}$ in. to $\frac{3}{8}$ in. broad; globose, with a long narrow point; white, and without resin; not surrounded by smaller buds (see *fig.* 1902.). Cones about 3 in. long, and $2\frac{1}{4}$ in. broad. Scales 1 in. long, and about the same width in the widest part. Seed larger than that of any other European species of *P.* Pìnus, except *P.* Pínea, $\frac{1}{2}$ in. long, and $\frac{5}{16}$ in. broad in the widest part, somewhat triangular, and wedge-shaped; without wings, probably from abortion; and having a very hard shell, containing an eatable, oily, white kernel, agreeable to the taste. Cotyledons 11 to 13 (see *fig.* 1903.). A tall tree. Switzerland and Siberia. Height 50 ft. to 80 ft. Introduced in 1746. It flowers in May, and ripens its cones in the November of the following year.

1902.

1903.

*Varieties.*

- ☤ P. C. 1 *sibírica.* *P. Cémbra* Lodd. Cat. ed. 1837; Kedr, *Pall.*; Cedar of some authors; the Siberian Stone Pine, or Siberian Cedar, *Hort.*—The cones are said to be longer, and the scales larger, than in the Swiss variety; the leaves are, also, rather shorter; and the plant is of much slower growth in England.
- ☤ P. C. 2 *pygmæ'a.* *P. C.* pùmila *Pall. Ross.*; Slanez, *Russ.*—According to Pallas, the trunk of this variety does not exceed 2 in. in thickness, and it is rarely above 6 ft. in height; the branches being not more than 1 in. in diameter. Some specimens are much lower in height, prostrate, and shrubby.
- ☤ P. C. 3 *helvética* Lodd. Cat. ed. 1836. The Swiss, Cembran, or Stone, Pine.—Cones short and roundish, with close scales; and the plants of more vigorous growth than the Siberian variety; the wood, also, is said to be more fragrant. This is much the commonest form of *P. Cémbra* in British gardens.

In England, *P. Cémbra* is an erect tree, with a straight trunk and a smooth bark. When standing singly, it is regularly furnished to the summit with whorls of branches, which are more persistent than the branches of most other species of Abiétinæ. The leaves are from 3 to 5 in a sheath, three-ribbed; the ribs serrated, one of them green and shining, and the other two white and opaque. In most species of pine, it has been observed that during winter the leaves incline more towards the shoots which produce them than in summer, as if to prevent the snow from lodging on them; and this is said to be much more conspicuously the case with the leaves of *P. Cémbra* than with those of any other species. The male catkins are red, and appear at the base of the young shoots. According to Lambert, the flowers have a more beautiful appearance than in any other species of pine, being of a bright purple; and the unripe full-grown cones, he says, have a bloom upon them like that of a ripe Orleans plum. The tree is of remarkably slow growth in

1904. *P. Cémbra.*

every stage of its progress, more especially when young; seldom advancing more, even in rich soils, than 1 ft. in a year. The wood of *P. Cémbra* is very soft; and its grain is so fine, that it is scarcely perceptible. It is very resinous, which is the cause of its agreeable fragrance. It is not commonly large enough to be used in carpentry; but in joinery it is of great value, as it is remarkably easy to be worked, and is of great durability. In Switzerland, it is very much used by turners; and the shepherds of the Swiss Cantons, and of the Tyrol, occupy their leisure hours in carving out of it numerous curious little figures of men and animals, which they sell in the towns, and which have found their way all over Europe. The wood is much used for wainscoting; having not only an agreeable light brown appearance, but retaining its odour, according to Kasthofer, for centuries. In Switzerland, the seeds are used in some places as food, and in others as an article of luxury. Though the Cembran pine will grow in the poorest soils, and in the most elevated and exposed situations, where no other pine or fir will exist, yet it will not grow rapidly, except in a

1905. *P. Cembra.*

free soil, somewhat deep, and with a dry subsoil. All the varieties are propagated from imported seeds, which may be sown in the same autumn in which they are received; or, perhaps, kept in a rot heap for a year, as they lie two winters and one summer in the ground before germinating. The plants grow exceedingly slowly for 4 or 5 years, seldom attaining in that period a greater height than from 1 ft. to 2 ft. When they are to be removed to any distance, they are best kept in pots; but, the roots being small and numerous, large plants of *P. Cémbra* transplant better (when they are not to be carried to too great a distance) than most other species of *P*ìnus.

b. *Natives of North America.*

♀ 51. *P.* Stro'bus *L.* The Strobus, *or Weymouth*, Pine.

*Identification.* Lin. Sp. Pl., 1419.; Pursh Fl. Amer. Sept., 2. p. 644.
*Synonymes. P.* fòliis quìnis, &c., *Gron. Virg.* 2. p. 152.; *P.* canadénsis quinquefòlia *Du Ham. Arb.* 2. p. 127.; *P.* virginiàna *Pluk. Alm.* p. 297.; *L*àrix canadénsis *Tourn. Inst.* p. 586.; New England Pine, white Pine, Pumpkin Pine, Apple Pine, Sapling Pine, *Amer.*; Pin du Lord, Pin du Lord Weymouth, *Fr.*
*Engravings.* Michx. N. Amer. Syl., 3. t. 145.; the plate of this tree in Arb. Brit., 1st edit., vol viii.; and our *figs.* 1906. to 1908. from specimens from Whitton.

*Spec. Char., &c.* Leaves slender, without sheaths. Male catkins small. Cone cylindrical, long, and pendulous. (*Michx.*) Buds from $\frac{3}{16}$ in. to $\frac{1}{4}$ in. long, and from $\frac{1}{16}$ in. to $\frac{2}{16}$ in. broad; ovate, pointed, and slightly resinous; surrounded by one or two small buds. (See *fig.* 1906.) Leaves from 3 in. to $3\frac{1}{2}$ in. long. Cone (see *fig.* 1908.) from 5 in. to 6 in. long, and from $1\frac{1}{2}$ in. to $1\frac{3}{4}$ in. broad, on a peduncle $\frac{3}{4}$ in. long; scales (see *fig.* 1907.) $1\frac{1}{2}$ in. long, and from $\frac{5}{8}$ in. to $\frac{6}{8}$ in. broad. Seed $\frac{3}{16}$ in. long, and $\frac{1}{16}$ in. broad; obovate, pointed below, with a wing which, including the seed, is about 1 in. long, and $\frac{1}{4}$ in. broad, in the widest part. Cotyledons 6 to 10. A large tree. Canada to Virginia, in fertile soil on the sides of hills. Height 50 ft. to 80 ft., rarely 150 ft. Introduced in 1705. Flowering in April, and ripening its cones in October of the second year.

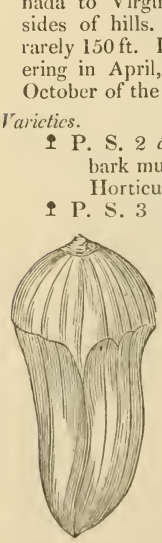
1906.

*Varieties.*

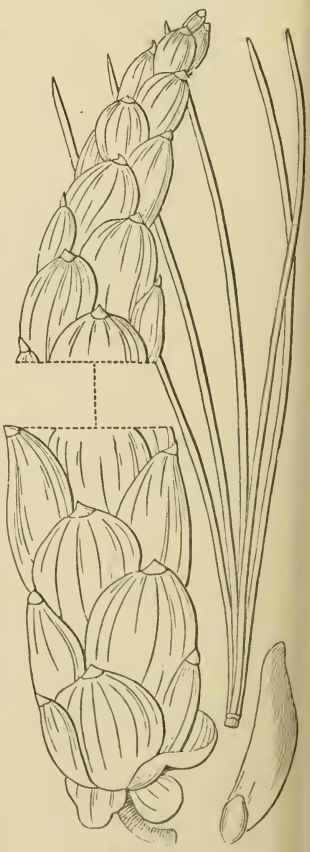
♀ P. S. 2 *álba* Hort. — Leaves and bark much whiter than the species. Horticultural Society.

♀ P. S. 3 *brevifòlia* Hort. — Leaves shorter.

♀ P. S. 4 *compréssa* Booth. *P. S.* nòva *Lodd. Cat.* ed. 1836; Floetbeck Weymouth Pine. — Also much shorter in the leaf, and probably the same as *P. S.* brevifòlia.


1907. *P.* Strobus.

The wood of this tree is remarkably white when newly sawn into planks; whence the common American name for it of white


1908. *P.* Strobus.

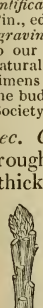
pine. The rate of growth in Britain is, except in very favourable situations, slower than that of most European pines. Nevertheless, in the climate of London, it will attain the height of 12 or 13 feet in 10 years from the seed When planted singly, like most other pines, it forms a branchy head; but, when drawn up among other trees of the same species, it has as clear a trunk in Britain as in America. The wood is more employed in America than that of any other pine, serving exclusively for the masts of the numerous vessels constructed in the northern and middle states. The soil and situation ought to be favourable, otherwise the tree will not thrive. Seeds are procured in abundance; and the plants, when sown in spring, come up the first year, and may be treated in the nursery like those of the Scotch pine.

♀ 52. *P.* (*S.*) LAMBERT*IA`NA* Dougl. The *gigantic, or* Lambert's, Pine.

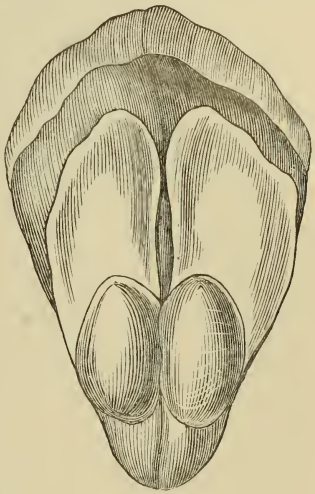
*Identification.* Dougl. in Lin. Trans, 15. p. 500.; Lamb. Pin., ed. 2., l. t. 34.

*Engravings.* Lamb. Pin., ed. 2., t. 34.; our *fig.* 1911., to our usual scale, and *figs.* 1909, 1910. 1912. of the natural size; the cone and scale from Douglas's specimens in the Horticultural Society's herbarium, and the buds and leaves from the tree in the Horticultural Society's Garden.

*Spec. Char., &c.* Leaves in fives, rigid, roughish; sheaths very short. Cones thick, very long, cylindrical; scales loose, roundish. (*Douglas.*) Buds, in the specimen from the Horticultural Society's Garden, $\frac{1}{8}$ in. long, and $\frac{1}{5}$ in. broad; roundish, pointed, and with 3 smaller buds. (See *fig.* 1909.) Leaves $2\frac{3}{4}$ in. to 3 in. long; in Douglas's specimens, $4\frac{1}{2}$ in. and 5 in. long. Cones from 14 in. to 16 in. long, and said to be sometimes 18 in. long, and 4 in. in diameter in the widest part; scales $1\frac{1}{2}$ in. wide, and nearly 2 in. long. Seed large, oval, $\frac{7}{8}$ in. long, and nearly $\frac{3}{8}$ in. broad; dark brown; wing dark brown, and, with the seed, $1\frac{3}{4}$ in. long, and $\frac{5}{8}$ in. broad in the widest part. A gigantic tree. California, upon low hills, east of the range of the Rocky Mountains, covering large districts. Height 150 ft. to 200 ft. rarely 215 ft. Introduced in 1827. It has not yet flowered in England. Native of the north-west coast of North America, where it was discovered by Mr. Douglas; and introduced into England in 1827.



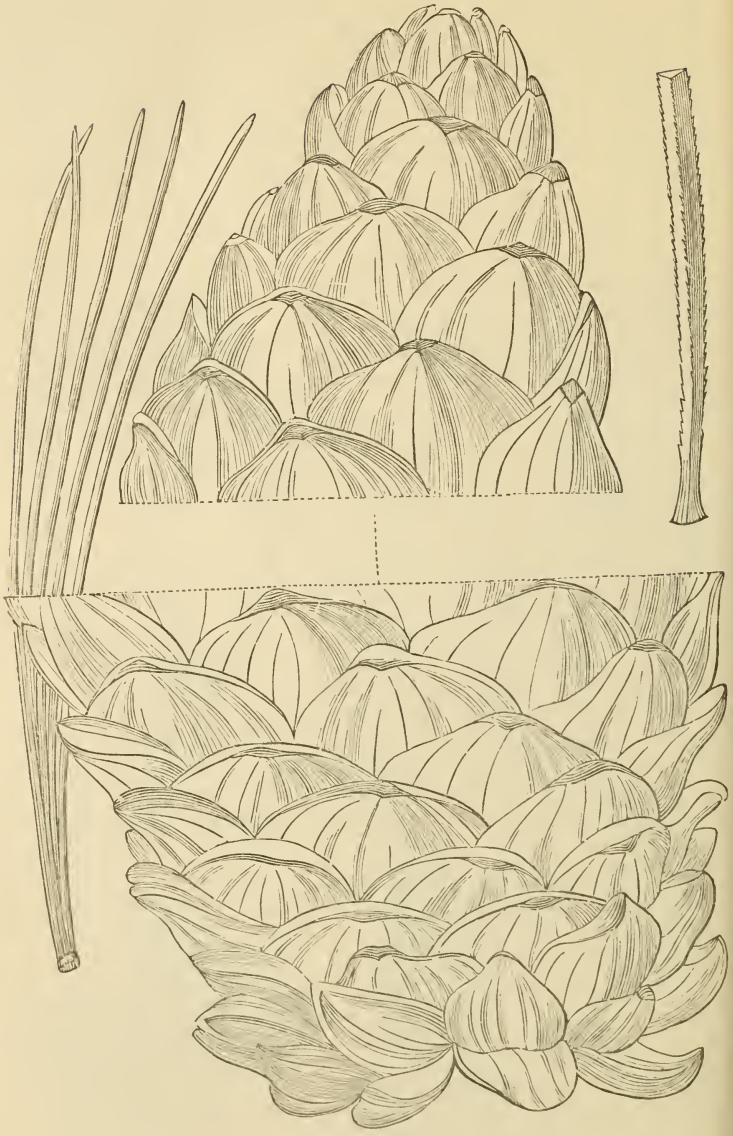
1909.



1910. *P.* (*S.*) Lamberti*ana*.

1911. *P.* (*S.*) Lamberti*ana*.

The species to which this pine is most nearly allied, Douglas observes, is undoubtedly *P. Strò*bus, from which, however, it is extremely different in station, habit,



1912. *P.* (*S.*) Lambert*ina*.

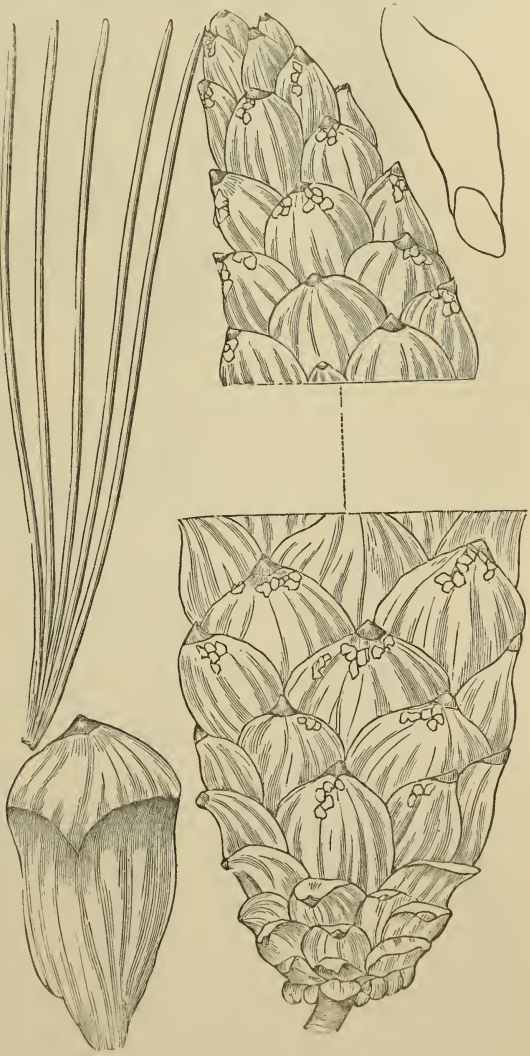
and parts of fructification. Plants were raised of this species in the Horticultural Society's Garden in 1827, and distributed in the following year; but it is remarkable that the greater part of them have since died, generally when they were about 4 or 5 feet in height. Notwithstanding this, the species does not appear to be much more tender than *P. Strobus*. The resin which exudes from the trees, when they are partly burned, loses its

usual flavour, and acquires a sweet taste; in which state it is used by the natives as sugar, being mixed with their food. The seeds are eaten roasted or are pounded into coarse cakes for their winter store. H. S.

♀ 53. *P.* (*S.*) MONTI'COLA *Dougl.* The Mountain, *or short-leaved Weymouth*, Pine.

*Identification.* Lamb. Pin., ed. 2., vol. 2., 3. t. 87.
*Engravings.* Lamb. Pin., 3. t. 87.; and our *figs.* 1913. and 1914. from Douglas's specimens in the herbarium of the Horticultural Society.

*Spec. Char., &c.* Leaves in fives, short, smoothish, obtuse. Cones cylindrical and smooth; scales loose and pointed. (*D. Don.*) Buds, in the plant in the London Horticultural Society's Garden, small, resembling those of *P.* Lambertiàna. Leaves from $3\frac{1}{2}$ in. to 4 in. long, without the sheaths. Cone, from Douglas's specimen, 7 in. long, and $1\frac{3}{4}$ in. broad; rather obtuse at the point: scales $\frac{3}{4}$ in. broad at the widest part, and from $1\frac{3}{4}$ in. to 2 in. long, and covered with resin. Seed small, $\frac{3}{16}$ in. long, and $\frac{1}{16}$ in. broad; with the wing, $1\frac{1}{4}$ in. long, and $\frac{1}{4}$ in. broad. Cotyledons, ?. A tree. High mountains, at the Grand Rapids of the Columbia river; and in California, on the rocky banks of the Spokan river. Height (?). Introduced in 1831; but there are only very small plants in England.



1913. *P.* (*S.*) monticola.

Except in its much shorter and smoother leaves, this species differs but little from *P.* Stròbus, of which it may prove to be only a variety; but, until an opportunity occurs of examining the male catkins, and

1914. *P.* (*S.*) monticola.

c. *Natives of Nepal and Mexico.*

♀ 54. *P.* (*S.*) EXCE'LSA *Wallich.* The lofty, *or Bhotan*, Pine.

*Identification.* Wall. Pl. As. Rar., t. 201.; Lamb. Pin., 1. t. 33.

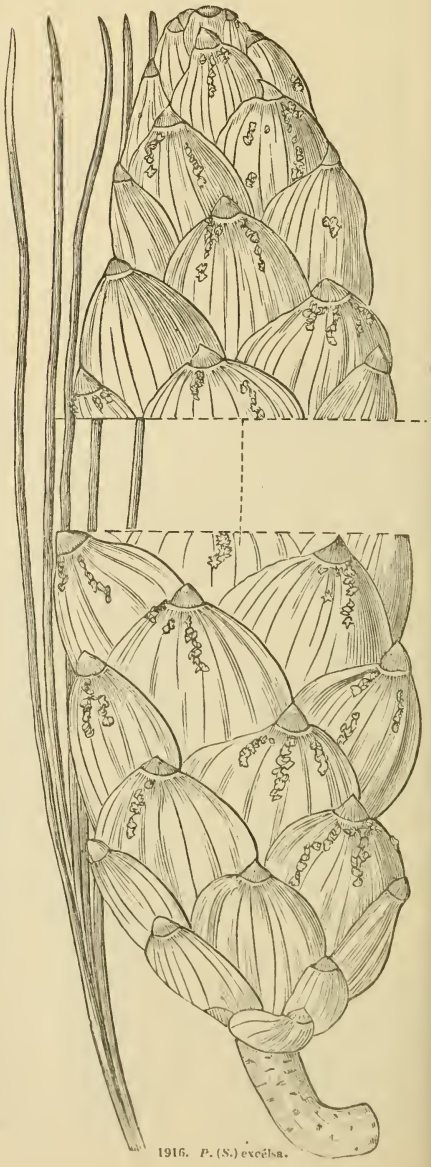
*Synonymes.* *P.* Dicksónii Hort.; Chilla, or Chylla, *Himalayas;* Kuel, *Sirmone & Gurhwal;* Lemshing, *Bhotea;* Raesula, or King of the Firs, *Hindostan.*

*Engravings.* Wall. Pl. As. Rar., t. 201.; Lamb. Pin., 1. t. 33.; our *fig.* 1918. to our usual scale, and *figs.* 1915, 1916, 1917. of the nat. size, from Wallich, Lambert, and from living specimens.

*Spec. Char., &c.* Leaves in fives, very long, and slender, loose. Crest of the anthers roundish, truncate; simple, lacerated. Cones cylindrical, smooth, pendulous, longer than the leaves. (*Wall.*) Buds, on the tree in the Horticultural Society's Garden, $\frac{1}{4}$ in. long and $\frac{3}{16}$ in. broad; conical, with straight sides, and pointed. (*Fig.* 1915.) Leaves rather more than 6 in. long. Cone 9 in. long, and 2 in. broad. with a footstalk 1 in. long; scale $1\frac{3}{4}$ in. long, and $1\frac{1}{8}$ in. broad. Seeds $\frac{5}{16}$ in. long, and $\frac{3}{8}$ in. broad; with the wing, $1\frac{1}{4}$ in. long, and $\frac{3}{8}$ in. broad. A large tree. Nepal, on mountains. Height 90 ft. to 120 ft. Introduced in 1823. It flowers in May, and ripens its cones in the autumn of the second year.

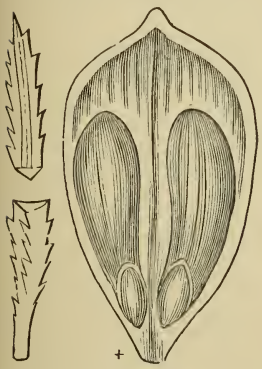
1915.

ascertaining other particulars, it is considered best to keep it distinct. Judging from the appearance of the specimens sent home by Douglas, the tree must abound in resin. Among Douglas's specimens, there is a variety with red cones, from which no plants have yet been raised.



1916. *P.* (*S.*) excélsa.

*Pì*nus excélsa, Mr. Lambert observes, approaches so near in habit, and in the shape of its cones, to *P. S*tròbus, that, were it not



1917. *P.* (S.) excélsa.

1918. *P.* (S.) excélsa.

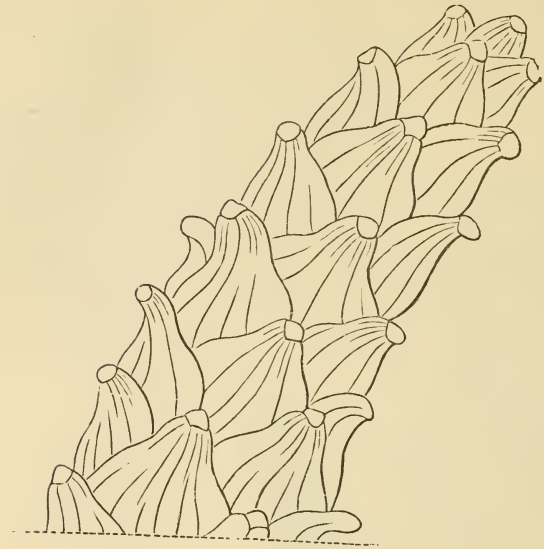
for the simple, round, membranaceous crest of the anthers, it would be almost impossible to distinguish them specifically. The leaves are longer than in *P. S*tròbus, and the cones are thicker. Dr. Royle makes a similar remark as to the resemblance of this tree to *P. S*tròbus, and adds "that it is remarkable for its drooping branches, whence it is frequently called the 'weeping fir,' by travellers in the Himalayas." The rate of growth of this tree, in the climate of London, appears to be nearly the same as that of *P. S*tròbus, and it seems equally hardy.

### ♀ 55. *P. AYACAHUI'TE* C. Ehrenb. The Ayacahuite Pine.

*Identification.* Schlecht. in Linnæa, vol. xii. p. 492. ; Gard. Mag., 1839, p. 129.
*Synonymes.* Piñones. It is so called because it was believed that the Ayacahuite, the aboriginal name of this species, had originated in P. Piñones (*P.* Llave*ana*).
*Engravings.* Our *figs.* 1919, 1920. from a specimen sent home by Hartweg.

*Spec. Char., &c.* Leaves in fives, on small spur-like protuberances, which, when very close together, make the twig look stunted and very crooked. Leaves from 3 in. to 4 in. long, and about $\frac{1}{13}$ of a line broad; flat on the back, but with a sharp projecting keel-like midrib, and two furrows. The leaves are whitish when young, with sharp thickened small teeth, not very close together, in the margin towards the points. Cones more than 1 ft. long, and 3 in. in diameter at the base, and tapering towards the point, some much

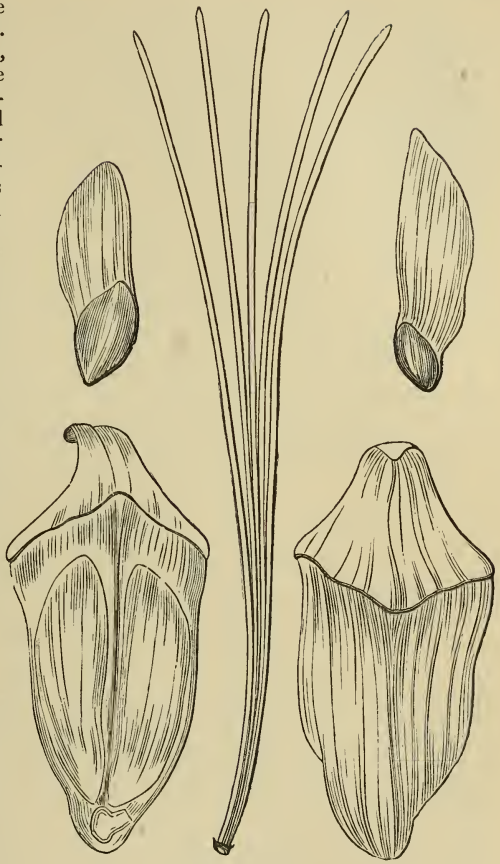
1919. *P. Ayacahuite.*



1920. *P. Ayacahuite*

longer than others The scales are about 2 in. long, standing open, with their points more or less bent downwards; the rhomboidal surface is much longer than it is broad, intersected by many wrinkles lengthwise, of a dull greenish and yellowish brown colour. Seed winged, 1 in. long, and from 8 to 12 lines broad at the top, where it is broadest. It is small in proportion to the cone. The wing has almost the appearance of the upper wings of many small moths, being brownish, with dark stripes running lengthwise. (*Schlecht.*) A large tree. Mexico, at Omitlan, near Hacienda de Guerrero, and other places. Height 100 ft. Introd. to H. S. Gard. in 1840 by Hartweg.

A great deal of resin exudes from the whole cone, as in *P*ìnus *S*tròbus, to which this species is nearly allied; but it differs in the points of the scales, which in this species are bent downwards, whereas in *P. S*tròbus they are bluntly rounded, obtuse, and stand upright.



1921. *P. Ayacahuìte.*

## Genus II.

A'BIES *D. Don.* The Spruce Fir. *Lin. Syst.* Monœ'cia Monadélphia.

*Identification.* D. Don in Lamb. Pin., vol. iii.

*Synonymes.* *P*ìnus of Lin. and others, in part; *P*ìcea *Link* in *Abhand. König. Akad. Wissens. Berlin*, p. 179. for 1827, (the ancients called the silver fir *A*'bies, and the spruce fir *P*ìcea; but, by some inadvertence, Linnæus reversed these names: Professor Link has restored them in the essay quoted, but we have not thought it advisable to depart from the customary nomenclature, by following him); *A*'bies of Tourn., Mill., and others, in part; Picea of the ancients; Sapin épicea, *Fr.*; Fichtenbaum, *Ger.*; Abete, *Ital.*; Abieto, *Span.*

*Derivation.* From *abeo*, to rise; alluding to the aspiring habit of growth of the tree: or, according to some, from *apios*, a pear tree; in allusion to the form of the fruit.

*Gen. Char.* The same as *P*ìnus: but with the *cones* pendent, and less decidedly grouped; the *strobiles* cylindrically conical; the *carpels* not thickened at the tip; and the *leaves* solitary, partially scattered in insertion, and more or less 2-ranked in direction. *Carpels* and *bracteas* adhering to the axis of the strobiles. (*D. Don.*)

*Leaves* simple, 2-rowed, exstipulate, evergreen; linear. *Flowers* in catkins, the males yellowish.— Trees evergreen; natives of Europe, Asia, and America; remarkable for their tall, erect, pyramidal forms, and profusion of foliage. One or more species are useful, and the rest ornamental. In Britain, they flower in May and June, and ripen their cones in the spring of the following year. All the species bear seeds at a comparatively early age; and all of them may be readily propagated by cuttings taken off in the spring, according to Dumont De Courset; or in autumn, according to the practice of British gardeners. All the species hitherto introduced are quite hardy in British gardens.

Our arrangement of the species in British gardens is as under: —

§ i. Leaves tetragonal, awl-shaped, scattered in insertion.

A. *Natives of Europe and the Caucasus.*

1. excélsa. 2. orientàlis. 3. obovàta.

B. *Natives of North America.*

4. álba. 5. nìgra. 6. (n.) rùbra.

C. *Native of Nepal.* 7. *Khùtrow.*

§ ii. Leaves flat, generally glaucous beneath, imperfectly 2-rowed.

D. *Natives of North America.*

8. Douglàs*ii.* 9. Menziès*ii.* 10. canadénsis.

E. *Native of Nepal.* 11. dumòsa.

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## § i. *Leaves tetragonal, awl-shaped, scattered in insertion.*

### A. *Natives of Europe and the Caucasus.*

♀ 1. *A.* EXCE'LSA *Dec.* The lofty, *or Norway,* Spruce Fir.

*Identification.* Dec. Fl. Fr., 3.; Poir. Dict. Encyc., 6. p. 518.; N. Du Ham., 6. p. 289.

*Synonymes.* *A.* commùnis *Hort.*; *A*'bies *P*icea *Mill. Dict.* No. 2.; *P*inus *A*'bies *Lin. Sp. Pl.* 1421.; *P. P*icea *Du Roi Harbk.* ed. Pott., 2. p. 156.; *P.* excélsa *Lam. Fl. Fr.* ed. 1. 2. p. 202.: *P*icea vulgàris *Link* in *Abhand.* p. 180.; common Spruce, Prussian Fir; faux Sapin, E'picea, Sapin-Pesse, Serente, Sapin gentil, Pinesse, *Fr.*; Lafie, *in the Vosges*; gemeine rothe Tanne, gemeine fichte, *Ger.*; Pezzo, Abete di Germania, or di Norvegia, *Ital.*

*Engravings.* Lamb. Pin., ed. 2., 1. t. 35.; N. Du Ham., 6. t. 80.; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1923.

*Spec. Char., &c.* Leaves scattered, quadrangular. Cones cylindrical, terminal, pendent; scales naked, truncate at the summit, flat. Crest of the anthers rounded. (*Lois.*) Cone from 5 in. to 7 in. long, and from $1\frac{1}{2}$ in. to 2 in. broad; scale from 1 in. to $1\frac{1}{2}$ in. long, and from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. broad. Seed very small, scarcely $\frac{1}{8}$ in. long, and $\frac{1}{16}$ in. broad; with the wing, $\frac{3}{4}$ in. long, and $\frac{1}{4}$ in. broad. Cotyledons 7 to 9. A lofty tree. North of Europe, more particularly Norway. Height 80 ft. to 100 ft. Cultivated since 1548. It flowers in May; its cones are ripened in the spring of the following year, soon after which they commence shedding their seeds.

*Varieties.*

♀ A. *e.* 1 *commùnis.* The common Spruce, or White Fir of Norway.— The foliage is shorter, more slender, and lighter-coloured, than in the following form; though the difference may be in part owing to soil and situation.

♀ A. *e.* 2 *nìgra.* The black-leaved Spruce, or Red Fir of Norway.— There is a tree in Studley Park, known there as the black spruce, of which a portrait is given in *Arb. Brit.*, 1st edit., vol. viii. In the foliage, it answers to the description given of the red fir of Norway; its leaves being very thick, strong, and dark-coloured; its bark red; and its cones longer than those of the common spruce. The leaves, in the specimen sent to us, are $1\frac{1}{4}$ in. in length; and the cones from $5\frac{1}{2}$ in. to 6 in. long, and from $1\frac{1}{4}$ in. to $1\frac{1}{2}$ in. broad. The scales (see

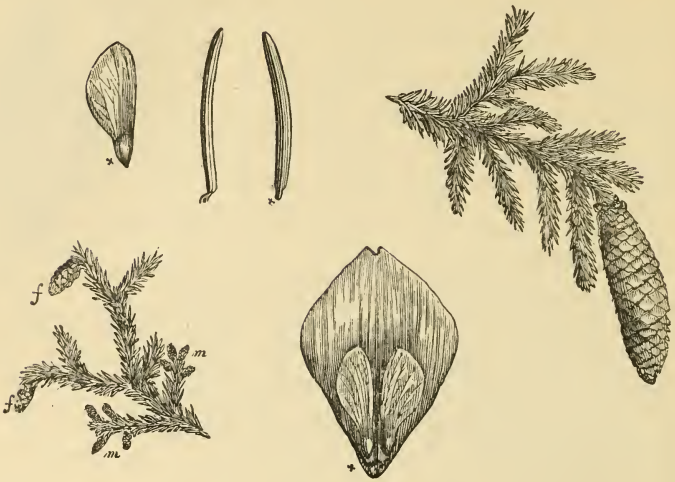
*fig.* 1922.) are much more pointed than those of the common spruce, and longer.

1922. *A.* e. nigra.

- A. *c.* 3 *carpática. A.* carpática *Hort.* — This variety has vigorous shoots, and foliage as dense and long as that of the preceding, but lighter.
- A *e.* 4 *péndula. A.* commùnis péndula *Booth* — Distinguished from the species by the drooping habit of its branches; and also by the darker glossy green colour, and greater length, of its leaves.
- A. *e.* 5 *fóliis variegàtis.* — Leaves blotched with yellow, and a more compact dwarf-growing tree than the species.
- A. *e.* 6 *Clanbrasiliàna.* — A low, compact, round bush, seldom seen higher than 3 or 4 feet, and never, that we have heard of, producing either male or female blossoms. The annual shoots are from 1 in. to 4 in. in length ; the leaves from $\frac{1}{4}$ in. to $\frac{1}{2}$ in. long, and their colour is lighter than in the species.
- A. *e.* 7 *Clanbrasiliàna stricta.* — More erect than the preceding variety.
- A. *e.* 8 *pygmæ'a. A.* nàna in the Horticultural Society's Garden ; *A.* élegans *Smith of Ayr.* — Dwarfer than *A.* e Clanbrasili*àna.*
- A. *e.* 9 *tenuifòlia. A.* tenuifòlia *Smith of Ayr.* — Very slender leaves and shoots.
- A. *e.* 10 *gigantèa. A.* gigantèa *Smith of Ayr.* — Leaves rather larger and stronger than those of the species.
- A. *e.* 11 *monstròsa. A.* monstròsa *Hort.* — Shoots and leaves thicker than those of the species, with few or no lateral branches.
- A. *e.* 12 *mucronàta* Hort. — Leaves disposed on the branches like those of Araucària imbricàta. The only plant that we know of is in the nursery of the Grand Trianon. (See *Gard. Mag.* for 1841.)

*Other Varieties* may be found in the nurseries and in books; for the tree is very liable to sport, both in its branches and in the seed bed. Bosc mentions a variety which had been sent to him from the Vosges, with the leaves flatter and more pointed than the common spruce, and with different cones. Hayes speaks of a seminal variety of the spruce, which has been denominated the long-coned Cornish fir, the cones being frequently nearly 1 ft. long; and of which, in the year 1790, there was a fine tree in the park of Avondale, in the county of Wicklow. (*Pract. Treat.*, p. 165.) *P*ìnus viminàlis *Alstræm.*, the Höngetanne (weeping fir) of Sweden, with long slender pendulous leafless twigs, is frequently found there in fir woods (see *Link, Abhand.*, p. 182.), but has not yet been introduced. There is a very beautiful variety at Harewood Hall, in Yorkshire (see *Arb. Brit.*, 1st edit., p. 2599.), which we believe has not been propagated. Linnæus has five varieties in his *Flora Suecica.* According to Gærtner the species is exhibited in two forms, called the white and the red Norway spruce ; one with pale, and the other with deep-coloured, cones ; but the timber of both is white.

The wood of the spruce fir is light, elastic, and varying in durability according to the soil on which it has grown. Its colour is either a reddish or a yellowish white, and it is much less resinous than the wood of *P.* sylvéstris. According to Hartig, it weighs 64 lb. 11 oz. per cubic foot when green, 49 lb. 5 oz. when half-dry; and 35 lb. 2 oz. when quite dry; and it shrinks in bulk one seventieth part in drying. The ashes furnish potash ; and the trunk produces an immense quantity of resin, from which Burgundy pitch is made. The resin is obtained by incisions made in the bark, when it oozes out between that and the soft wood ; and the mode of procuring and manufacturing it will be found detailed in our 1st edition. The principal use to which the wood is applied is, for scaffolding-poles, ladders, spars, oars, and masts to small vessels; for which purposes, the greater proportion of the importations of spruce fir timber from Norway are in the form of entire trunks, often with the bark on, from 30 ft. to 60 ft.




1923. *A*bies excélsa.

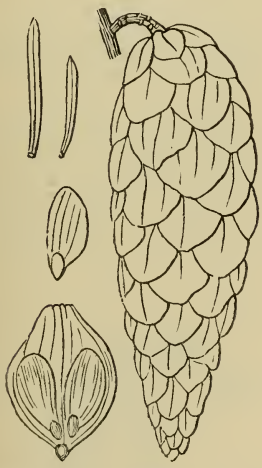
in length, and not more than 6 or 8 inches in diameter at the thickest end. The planks and deals are used for flooring rooms, and by musical instrument makers and carvers ; they are also used by cabinet-makers for lining furniture, and for packing-boxes, and many similar purposes. The wood, being fine-grained, takes a high polish, and does well for gilding on ; and it will take a black stain as well as the wood of the pear tree. The spruce fir is one of the best nurses for other trees, not only from its dense mass of foliage, which may be considered as a reservoir of heat, but because, from its conical form, and its being abundantly furnished with branches on the surface of the ground, it acts as a non-conductor, and keeps the soil from cold and drought ; and, while it protects the plant to be sheltered from high winds, it admits the top of that plant to the free enjoyment of light and air. It makes excellent hedges for shelter, bearing the shears well. All agree that it requires a soil somewhat moist. It will thrive in soils of very different qualities ; but it never attains large dimensions in shallow soils and exposed places. On dry soils, it invariably becomes stunted, produces a great number of cones at an early age, and soon dies. The check given to large trees by transplanting also throws them into bearing ; by which means, even in the most suitable soils, the progress of the tree in making wood is much impeded. Hence, in the case of the spruce, as in all other *A*biétinæ, the great advantage of transplanting the tree when young. The spruce fir grows most luxuriantly in deep loams and low situations ; or on acclivities with a north-east aspect, and a moist sandy soil ; in which last situation, at Blair and other places in Scotland, it is found to produce timber as strong and durable as that imported from Norway. The mature cones may be gathered any time between the November of the first year and the following April : they should be chosen from healthy vigorous trees, and exposed to the heat of the sun, placed in a warm room, or slightly dried on a kiln ; after which, the seeds will drop out by merely shaking the cones, or gently thrashing them. Fifteen gallons of cones will produce 2 lb. of seeds with their wings, or 1 lb. 4 oz. without them. After being collected, the seeds may be kept three or four years, and will still preserve their vitality ; but it is always safest to sow them immediately after taking them from the cones, or in the course of the following March or April. The seeds of the spruce fir, being nearly of the same size as those of the Scotch pine, may be treated in the nursery in a similar manner ; but, as the plants, when they come up, are more

prolific in fibrous roots, and less so in shoots and leaves, they may be kept in the nursery, by frequent transplanting, till they attain a much larger size. The most convenient time for planting them where they are finally to remain is after they have been two years in the seed-bed, and one year transplanted; and the operation should never be performed but in mild weather, and when the air is somewhat moist.

### ♀ 2. *A.* ORIENTA'LIS *Tourn.* The Oriental Spruce Fir.

*Identification.* Tourn. Cor., 41
*Synonymes.* Pinus orientàlis *Lin. Sp. Pl.* 1421., *Lamb. Pin.* ed. 2. 1. t. 39.; *Pícea* orientàlis *Link*, and *Steven* in *Bull. Soc. Nat. Mos.* 1833.
*Engravings.* Lamb. Pin., ed. 2., 1. t. 39.; and our *figs.* 1924. and 1925.

*Spec. Char., &c.* Leaves solitary, sub-quadrangular. Cones cylindrical; scales broader than long, rhomboid ovate, rounded at the apex, sub-entire. (*Steven.*) Leaves half as long as those of *A*'bies excélsa, and, like them, quadrangular, acute, but not pungent; neither are they two rowed, as Tournefort states, but cover the branches on all sides, as in the common spruce. Cones 3 in. long, subcylindrical; scales more laxly imbricated as the seeds ripen, inferior broadly rounded, superior somewhat acute. A lofty tree. Tauria and Caucasus, on the loftiest mountains of Imeretia, and frequent in Upper Mingrelia, especially in the neighbourhood of churches, and forming whole forests between Guriel and the Adshar mountains. (*Gard. Mag.*, 1839, p. 227.)



1925. *A.* orientàlis.

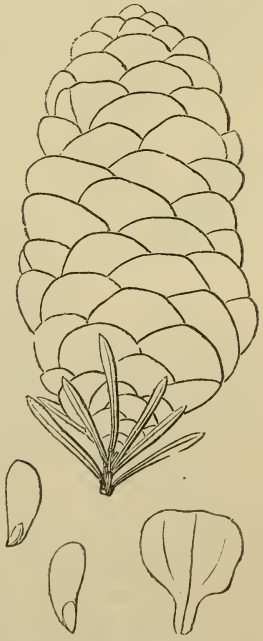
1924. *A.* orientàlis.

Described by Lambert, after Tournefort, and from dried specimens; but cones with fertile seeds do not appear to have been introduced till ? 1837. Of late many plants have been raised in Knight's Exotic Nursery, from seeds received from Mingrelia and the neighbourhood of Teflis.

### ♀ 3. *A.* OBOVA'TA *D. Don MS.* The obovate-*leaved* Spruce Fir.

*Synonyme.* Pícea obovàta *Led. Icon. Pl. Fl. Ross.* t. 500.
*Engravings.* Our *fig.* 1926. and 1927. from Ledebour.

*Spec. Char., &c.* Leaves arranged in many series, curved upwards. Cones erect, cylindrical. Scales abruptly dilated from the cuneate base into a quadrangular lamina, broader towards the point. Bracteas somewhat quadrangular, mucronate, not half the length



1926. *A.* obovàta.

of the scale, scarcely broader than the wing of the fruit, which is straight on both margins towards the apex. Found on the Altai Mountains, at an elevation of 5272 ft. Flowering in May; not yet introduced.

1927. *A.* obovàta.

Professor Don informs us that he strongly suspects this tree to be only a northern form of *A*bies Smith*iàna*. Ledebour, he says, has committed the same error in regard to his *P.* obovàta, as Dr. Wallich did in the case of *A*bies Smith*iàna*; that is, he has described the cones as erect, while, from the other parts of his description, the tree must belong to the genus *A*bies.

B. *Natives of North America.*

♀ 4. *A.* A'LBA *Michx.* The white Spruce Fir.

*Identification.* Michx. Fl. Bor. Amer., 2. p. 207.; N. Amer. Syl., 3. p. 182.
*Synonymes.* Pinus álba *Ait. Hort. Kew.* 3. p. 371.; *P.* láxa *Ehrh. Beitr.* 3. p. 24.; *P.* canadénsis *Du Roi Harbk.* p. 124.; *A.* curvifòlia *Hort.*; single Spruce, *Amer.*; Epinette blanche, *Canada*; Sapinette blanche, *Fr.*
*Engravings.* Lamb. Pin., ed. 2., 1. t. 36.; Michx. N. Amer. Syl., 3. t. 148.; the plate of this tree in Arb. Brit., 1st edit., vol viii.; and our *fig.* 1928.

*Spec. Char., &c.* Leaves somewhat glaucous, scattered round the branches, erect, quadrangular. Cones oblong-cylindrical, pendulous, lax; scales with entire margins. (*Michx.*) Cones from $1\frac{3}{4}$ in. to $2\frac{1}{2}$ in. long, and from $\frac{5}{8}$ in. to $\frac{6}{8}$ in. broad; on the tree at Dropmore, 4 in. long. Seed very small; with the wing, $\frac{3}{8}$ in. long, $\frac{3}{16}$ in. broad. Leaves $\frac{3}{4}$ in. long; on the tree at Dropmore, twice the length of those of *A.* nigra, very glaucous when they first

1928. *A.* álba.

come out. A tree. Canada to Carolina, throughout the tracts of high mountains. Height 40 ft. to 50 ft. Introduced in 1700. It flowers in May and June, and the cones are ripe in the April following.

*Variety.*

♀ A. *a.* 2 *nàna* Dickson of the Chester Nursery.—A low-growing plant, apparently somewhat distinct.

*Other Varieties.* Loiseleur Deslongchamps states that, according to the specimens of *A.* orientàlis which Tournefort brought from the Levant, this alleged species cannot be separated from *A.* álba. He therefore introduces *A.* orientàlis *Tourn.*, *Poir. Dict.* vi. p. 508., and *Lamb. Pin.* ed. 1. ii. t. 39., as a variety of *A.* álba. We have retained it as a species (No. 2.), though we have great doubts as to its distinctness.

The general aspect of the white spruce is much lighter than that of any other species of the genus. The bark is considerably lighter in colour than

that of any other spruce; the leaves are also less numerous, longer, more pointed, at a more open angle with the branches, and of a pale bluish green. The male catkins are pendulous, on long footstalks, and of a brownish yellow. The female catkins are ovate and pendulous. When ripe, the cones are small, of a lengthened oval in shape, and a light brown colour; the scales are loose and thin, round or bluntly pointed, with entire edges. The seeds are minute, with a very small wing, and ripen a month earlier than those of the black spruce. When the tree is agitated with the wind, or when the cones are gently struck with a stick, the seeds drop out, and fall slowly to the ground with a tremulous fluttering motion, resembling a cloud of small pale brown moths. The rate of growth, in the climate of London, in sandy soil somewhat moist, is from 12 ft. to 15 ft. in 10 years. In 30 years, the tree will attain the height of from 30 ft. to 40 ft.; but in dry soils it seldom reaches either this age or height: indeed, all the American spruces may be considered, in England, as short-lived trees.

### ♀ 5. *A.* NI'GRA *Poir.* The black Spruce Fir.

*Identification.* Poir. Dict. Encyc., 6. p. 520.; Michx. N. Amer. Syl., 3. p. 176.
*Synonymes.* Pinus nigra *Ait. Hort. Kew.* 3. p. 370.; *P.* mariàna *Ehr. Beyt.* 3. p. 23.; *A*'bies mariàna *Wangh. Beyt.* p. 75.; double Spruce; noire Epinette, Epinette à la Bière, *in Canada.*
*Engravings.* Lamb. Pin., ed. 2., 1. t. 37.; Michx. N. Amer. Syl., 3. t. 147.; the plate of this tree in Arb. Brit., 1st. edit., vol. viii.; and our *fig.* 1929.

*Spec. Char., &c.* Leaves solitary, regularly disposed all round the branches; erect, very short, somewhat quadrangular. Cones ovate, pendulous; scales somewhat undulated; the apex of the scale crenulated or divided. (*Michx.*) Cones from $1\frac{1}{2}$ in. to $1\frac{3}{4}$ in. long, and from $\frac{5}{8}$ in. to nearly 1 in. broad. Seed rather larger than that of *A.* álba, but the wing smaller. Leaves from $\frac{1}{2}$ in. to $\frac{5}{8}$ in. long. A large tree. Canada to Carolina, throughout the tracts of high mountains. Height 60 ft. to 70 ft. Introduced in 1700. Flowering in May or June, and ripening its cones in the following April.

*Varieties.* The kind generally designated as *A.* rùbra (*P.* rùbra *Lamb.*) is asserted by Michaux to be only a variety, or rather variation, of *A.* nìgra, produced by the influence of the soil on the wood, but we have treated it as a subspecies, as it is tolerably distinct, and, at present, not common.

The branches spread more in a horizontal than in a drooping direction, like those of the Norway spruce; and, consequently, the black spruce (notwithstanding the darkness of its foliage) has not the gloomy aspect of the European tree. The bark is smooth and blackish. The leaves are of a dark sombre green; they are short, being scarcely $\frac{1}{2}$ in. long, thickly set, stiff, and are attached singly to the branches, which they cover all round. The male catkins are cylindrical, erect, and on peduncles; about 1 in. long; yellowish, with red-tipped anthers. The female catkins are oval, and at first erect, but soon become pendulous; they are purplish, and almost black, when young; but become, when ripe, of a dusky reddish brown. When full-grown, they are about $1\frac{1}{2}$ in. long, and $\frac{3}{4}$ in. in diameter at the middle. The scales are blunt, rounded, very thin, and, when ripe, rugged and torn on the margin, and sometimes half through the scale. The seeds are small, scarcely more than a line

1929. *A.* nìgra.

in length, with rather a small rigid wing. The rate of growth of *A.* nìgra is more rapid than that of *A.* álba under similar circumstances.

♀ 6. *A.* (N.) RU'BRA *Poir.* The red Spruce Fir, *or Newfoundland red Pine.*

*Identification.* Poir. Dict. Encyc.; Du Roi Harbk., ed. Pott., 2. p. 182.
*Synonymes.* *P.* americàna rùbra *Wang. Beyt.* p. 75.; *P*inus rùbra *Lamb. Pin.* 1. t. 38., *Pursh Sept.* 2. p. 640.; *A*'bies pectinàta *Lam.*
*Engravings.* Lamb. Pin., ed. 2., 1. t. 38.; Wang. Beyt., t. 16. f. 54.; and our *fig.* 1930.

*Spec. Char., &c.* Leaves solitary, awl-shaped, acuminate. Cones oblong, blunt; scales round, somewhat 2-lobed, entire. (*Lamb. Pin.*) Leaves little more than ½ in. long; slightly tetragonal. Cones about 1 in. long, and ½ in. broad; scales notched. Seeds very small. A large tree. Nova Scotia, and about Hudson's Bay. Height 70 ft. to 80 ft. Cultivated in England before 1755. Flowering in May, and ripening its cones the following spring.

*Variety.* A. (*n.*) *r.* 2 *cærùlea. A.* cærùlea *Booth.*— Has glaucous leaves, and appears to us to differ from *A.* (n.) rùbra only in the colour of the cones.

1930. *A.* (n.) rubra.

The cones are rather longer and redder than those of *A.* nìgra, and covered with resin. Michaux says that the red spruce is in no way inferior to the black spruce in the quality of its timber, which "unites in the highest degree all the good qualities that characterise the species." He also states that, instead of being a low tree, it is superior in size to the black spruce, as it generally grows in richer soil; and that the wood is reddish, instead of being white. In Lawson's *Manual*, it is stated that *A.* rùbra differs essentially both from *A.* nìgra and *A.* álba in all its parts; and particularly in its leaves, which are more slender and sharper-pointed than in either of these species.

1931. *A. Khùtrow.*

C. *Native of Nepal.*

♀ 7. *A. KHU'TROW.* The Khutrow Spruce Fir.

*Synonymes.* *A.* Smith*iàna* Arb. Brit. 1st edit. p. 2317.; *P*inus *Khùtrow* Royle Ill. p. 353; ? *P*inus Smith*iàna* Wall. Pl. Asiat. Rar., 3. p. 24.; *A*'bies Smith*iàna* Lindl. Pen. Cyc. 1. p. 31.; *A. Morinda* Hort.; Raga, or Raggoe, *in the Parbutee language.*
*Engravings.* Wall. Pl. As. Rar., t. 246.; Royle Ill., t. 84. f. 4.; and our *fig.* 1931. from Royle; and *fig.* 0003. in p. 0000.

*Spec. Char., &c.* Leaves compressed, tetragonal, straight, awl-shaped, sharp-pointed. Cones ovate-oblong; scales obovate-roundish, coriaceous, rigid, smooth on the margin. Crest of the anthers roundish, irregularly crenated. (*D. Don.*) Leaves, in Royle's specimen, and in the Horticultural Society's Garden, from 1 in. to 1½ in. in length. Cone, in Royle's figure, 6 in. long, and 2½ in. broad; scale 1⅛ in. in length, and the same in

breadth at the widest part. Seeds about the size of those of the common spruce; with the wing, $\frac{7}{8}$ in. long, and $\frac{3}{8}$ in. broad. A pyramidal drooping-branched tree. Himalayas, in Kamaon and Sirmore. Height 50 ft. Introduced in 1818. The tree has not yet flowered in England.

*Varieties.* Dr. Royle observes that the leaves in his figure are much narrower than those of *A.* Smith*iàna* in Wallich's figure; and that the plants may probably be different species or varieties. Judging from the leaves, the tree in the Horticultural Society's Garden appears to be Dr. Royle's tree.

The rate of growth of this tree in British gardens is almost as rapid as that of the common spruce, to which it bears a very close resemblance, but the leaves are longer and paler. It is readily propagated by cuttings, and abundance of seeds have lately been imported. Some doubts having been expressed as to whether this plant is the *A.* Smith*iàna* of Wallich (see *Bot. Reg.* for 1841), but none as to its being the *P. Khùtrow* of Royle, we have in this edition preferred the latter name.

## § ii. *Leaves flat, generally glaucous beneath, imperfectly 2-rowed.*

### D. *Natives of North America.*

♀ 8. *A.* DOUGLA'S*II* Lindl. The *trident-bracted, or* Douglas's, Spruce Fir.

*Identification.* Lindl. in Penn. Cyc., 1. p. 32.; Plantæ Hartweg, No. 439.

*Synonymes.* *P. t*axifòlia *Lamb. Pin.* ed. 2. 2. t. 47., *Pursh Fl. Amer. Sept.* 2. p. 640.; *A.* califórnia *Hort.*; *P*ìnus Douglàs*ii* Sabine MSS., Lamb. Pin. vol. 3. t. 90.; the Nootka Fir, *Smith* in *Rees's Cyc.* No. 28.

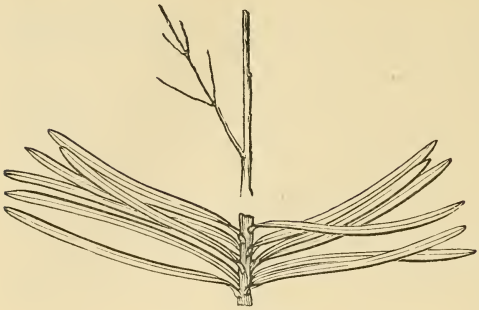
*Engravings.* Lamb. Pin., ed. 2., 2. t. 47., and vol 3. t. 90.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; our *fig.* 1932., from a specimen and sketch sent to us by Mr. M'Nab, jun., of the Caledonian Horticultural Society's Garden; and our *fig.* 1933.

*Spec. Char., &c.* Leaves flat, blunt, entire, pectinate, silvery beneath. Cones ovate-oblong. Bracteas elongated, linear, 3-pointed. (*D. Don.*) Leaves from 1 in. to $1\frac{1}{4}$ in. long. Cones from $3\frac{3}{4}$ in. to 4 in. long, and $1\frac{1}{2}$ in. to $1\frac{3}{4}$ in. broad; scales, without the bractea, $1\frac{1}{8}$ in. long, and the same broad; with the bractea, $1\frac{3}{4}$ in. in length. Seed, with the wing, $\frac{7}{8}$ in. long, and $\frac{3}{8}$ in. broad; without the wing, $\frac{1}{4}$ in. long, and $\frac{3}{16}$ in. broad. The seeds are about the same size as those of *P*ícea pectinàta, but more oblong. Cotyledons, ?. A tall tree. North-west coast of North America, in forests. Height 100 ft. to 180 ft. Introduced in 1826. It flowers in the climate of London in May, and its cones are matured in the June or July of the following year.

*Varieties.* Cones of different sizes, and somewhat different in the shape and size of the scales, have been sent home by Hartweg and others; because, doubtless, this species of spruce is liable to vary as well as every other; and the slightest variation in any species of plant which is comparatively rare is immediately constituted a named variety. Only one variety, that we have heard of, deserves notice.

♀ A. *D.* 2 t*axifòlia.* — Stem and side branches straight; while in *A.* Douglàs*ii* they are always, when young, more or less in a zigzag direction, though they become eventually straight. Leaves twice the length of those of *A.* Douglàs*ii*, and of a much deeper green. *Fig.* 1932. is from a specimen and a sketch received from Mr. M'Nab, showing the foliage and manner of branching of *A.* Douglàs*ii* in the Caledonian Horticultural Society's Garden, and which corresponds exactly with the trees of this name in the Chiswick Garden

1932. *A.* D. *t*axifòlia.



1933. *A. D. taxifolia.*

and at Dropmore. *Fig.* 1933. is from a sketch of the mode of ramification and of the foliage of a tree named *A. taxifolia* in the Edinb. Bot. Garden, raised from seeds received from the late Mr. Thos. Drummond, after the arctic expedition. It is, Mr. M'Nab observes, an upright-growing tree; and, with its long and dark leaves, very distinct from all the specimens of *A. Douglasii* he had seen.

A large conical tree, with a rugged greyish brown bark, from 6 in. to 9 in. thick, and abounding in balsamic resin. Leaves somewhat pectinate and spreading, narrow-linear, obtuse on the margin and apex, quite entire, flat; dark green above, marked on the middle with a depressed line, and silvery beneath; 1 in. long. The bark, in young trees, has its receptacles filled with a clear yellow resin, in the same manner as that of the balm of Gilead; and the bark of old trees is said to make excellent fuel. The timber is heavy, firm, with few knots, about the same yellow colour as that of the yew, and not in the least liable to warp. The rate of growth of this tree, in the climate of London, appears to be nearly as great as that of the common spruce; but, as it has a tendency to send out a profusion of side branches, it does not increase in height so much as it does in width and bushiness.

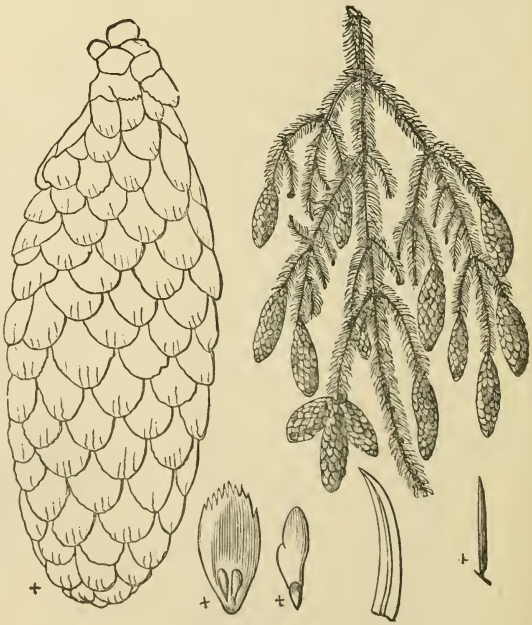
♀ 9. *A.* Menzie'sii Douglas. Menzies's, *or the warted-branched*, Spruce Fir.

*Identification.* Dougl. MS., Lindl., in Penn. Cyc., 1. p. 32.

*Synonyme.* Pinus Menziesii Lamb. Pin. 3.

*Engravings.* Lamb. Pin., 3. t. 89., and our *fig.* 1934. from Lambert, and the seeds from specimens in the Horticultural Society's herbarium sent home by Douglas.

*Spec. Char., &c.* Leaves acute, flat; silvery beneath, turned in every direction. Cones cylindrical; scales scarious, gnawed on the margin. (*D. Don.*) Leaves $\frac{3}{4}$ in. long. Cones from $2\frac{3}{4}$ in. to 3 in. long, and from 1 in. to $1\frac{1}{5}$ in. broad; scales $\frac{5}{4}$ in. long, and $\frac{3}{8}$ in. broad. Seed very small, scarcely $\frac{1}{8}$ in. long; with the wing, $\frac{5}{8}$ in.



1934 *A. Menziesii.*

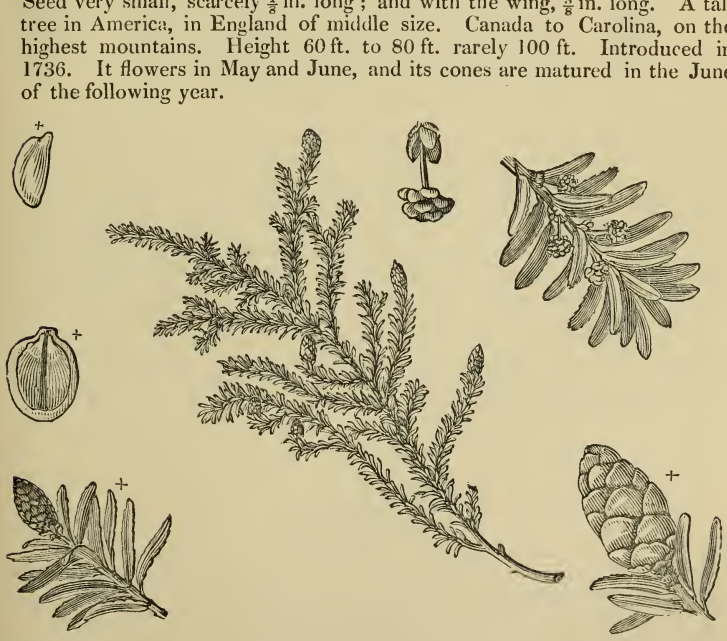
long. A tall tree. North of California. Height, ?. Introduced in 1831. There are only small plants in British gardens.

A tree with the general appearance of *A.* Douglàsii. Branches and branchlets tubercled. Buds ovate, acute, covered with resin. Leaves turned in every direction, resupinate from being twisted at the base, linear, mucronulate, incurved; silvery beneath, articulated with an elevated tubercle, very short, not more than 2 in. long, rigid, rather sharp-pointed, and very soon falling off the dried specimens. Cones pendulous, cylindrical, 3 in. long. Only a very few plants of *A.* Menziès*ii* were raised in the Horticultural Society's Garden in the year 1832; so that the species is at present extremely rare in this country. Readily propagated by cuttings.

♃ 10. *A.* CANADE'NSIS *Michx.* The Canada *Pine*, *or Hemlock* Spruce Fir.

*Identification.* Michx. N. Amer. Syl., 3. p. 185.
*Synonymes.* *P.* canadénsis *Lin. Sp. Pl.* 1421.; *P.* americàna *Du Roi Harbk.* ed. Pott. 2. p. 151., *Smith* in *Rees's Cyc.* No. 29.; *P. A*'bies americàna *Marsh. Arb. Amer.* p. 103. Perusse, *by the French in Canada*; Sapin du Canada, *Fr.*; Schierlings Fichte, *Ger.*
*Engravings.* Lamb. Pin., ed. 2., l. t. 45.; Michx. N. Amer. Syl., 3. t. 149.; N. Du Ham., 5. t. 82. f. 1.; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1935.

*Spec. Char, &c.* Leaves solitary, flat, slightly denticulate, obtuse, two-ranked. Cones oval, terminal, pendent, naked, scarcely longer than the leaves. Leaves from $\frac{3}{8}$ in. to $\frac{4}{8}$ in. long, and $\frac{1}{16}$ in. broad. Cones from $\frac{5}{8}$ in. to $\frac{7}{8}$ in. long, and $\frac{3}{8}$ in. broad; scales round-oblong, $\frac{1}{2}$ in. long, and $\frac{1}{8}$ in. broad. Seed very small, scarcely $\frac{1}{8}$ in. long; and with the wing, $\frac{3}{8}$ in. long. A tall tree in America, in England of middle size. Canada to Carolina, on the highest mountains. Height 60 ft. to 80 ft. rarely 100 ft. Introduced in 1736. It flowers in May and June, and its cones are matured in the June of the following year.



1935. *A.* canadénsis.

The hemlock spruce, in Europe, is a most elegant tree, from the symmetrical disposition of its branches, which droop gracefully at their extremities, and its light, and yet tufted, foliage. When the tree is young, the branches are quite pendulous, and remarkably elegant. The rate of growth, in the climate of London, is rather slow; but plants, in 10 years, will attain the height of 6 or 8 feet; and, in 20 years, of 15 or 20 feet. The wood of the hemlock spruce is less valuable than that of any other of the large resinous trees of North America; but the bark is inestimable, in that country, for the pur-

poses of the tanner. In England, the hemlock spruce forms one of the most ornamental of the fir family; being among needle-leaved evergreen trees what the weeping willow is among the willows. As it bears the knife, and is extremely hardy, it might be employed as hedges; for which purpose it is used in the American nurseries, along with the *Thùja occidentàlis*. Seeds are annually imported, and even produced by old trees in this country.

E. *Native of Nepal.*

♀ 11. *A.* DUMO'SA. The bushy *Alpine* Spruce Fir.

1936. *A.* dumòsa.

*Synonymes.* *P*ìnus dumòsa *Lamb. Pin.* ed. 2., 1. t. 46.; *A*'bies Brunoniàna Lindl. in Penn. Cyc. vol. i. No. 9.; *P* decidua *Wall. MS.*; *P.* Brunoniàna Wall. Plant As. rar. 3. p. 24.

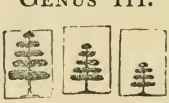
*Engravings.* Lamb. Pin., ed. 2., 1. t. 46.; Wall. Plant As. rar., 3. t. 247.; and our *figs.* 1936. and 1937.

*Spec. Char., &c.* Leaves solitary, linear, obtuse, mostly on one side of the branches; glaucous beneath, denticulated. Cones ovate, terminal, solitary; bracteoles wedge-shaped, plicate, emarginate, glabrous. (*Lamb.*) Leaves $\frac{5}{8}$ in. long. Cones, scales, and seeds scarcely different from those of *A.* canadénsis. A dense and very bushy tree, with the appearance of *A.* canadénsis. Nepal. Height 70 ft. to 80 ft. Introd. 1838.

1937. *A.* dumòsa.

*Other Species of* A'bies.—A. *Mertensiàna Bong.* and A. *sitchénsis* Bong. are mentioned by M. Bongard in his observations on the Island of Sitcha, on the west coast of North America, in N. lat. 57°, as indigenous there. The article is quoted in the *Annales des Sciences Naturelles*, 2d ser., tom. iii. p. 237.; but no description is given. A. *trigòna*, A. *heterophýlla*, A. *aromàtica*, A. *microphýlla*, A. *obliquàta*, and A. *falcàta* are mentioned by Rafinesque as being found in the Oregon country; but, as he gives no description of these trees, it is uncertain whether they belong to *A*bies or *P*ícea. The same observations will apply to A. *hirtélla* Humboldt et Kunth Nov. Gen. et Sp. Plant. pl. 2. p. 5., of which nothing is known either of the flowers or cones; to A. *Kæmpfèrii* and A. *Thunbérgii*, mentioned by Thunberg; and to A. Mórni, A. Toràno, and A. Araràgi, enumerated by Sieboldt in *Verhand. Batav. Genootsch.*, xii. p. 12., as quoted in *Pen. Cyc.*

## GENUS III.



*PI'CEA D. Don.* THE SILVER FIR. *Linn. Syst.* Monœ'cia Monadélphia.

*Identification.* D. Don MS.

*Synonymes.* P*i*nus *Lin.* in part; *P*inus sect. *Peùce D. Don* in *Lamb. Pin.* ed. 2. vol. 2.; *A*'bies *Link*, *Nees von Esenbeck*, and *Ledebour*; *A*'bies *Du Roi*, in part; Sapin, *Fr.*; Tannen, *Ger.*

*Derivation.* From *pix*, pitch; the tree producing abundance of resin. Loiseleur Deslongchamps observes that the silver fir was called by the ancients Abies, and the spruce Picea; and that Linnæus has created much confusion by reversing the application of the names. He proposes, therefore, to call the silver fir *A*'bies vêra, and the spruce fir *A*'bies *P*ícea. (*N. Du Ham.*, v. 214. note.) Link has divided the spruces and silver firs into two genera, and given the classical names of *P*icea to the first genus, and *A*'bies to the second (see *Abhand. Akad. der Wissenschaften*, jahr 1827, p. 157.); and in this he has been followed by Nees von Esenbeck and Ledebour. We have followed Lambert and D. Don, as already stated under *A*'bies, p. 1025.

*Gen. Char.* The same as in *P*ìnus and *A*'bies, but differing in having the cones erect. Strobile cylindrical, with its carpels not thickened at the tip. Both carpels and bracteas separate from the axis of the strobile. The leaves are obviously 2-ranked in direction.

*Leaves* simple, 2 ranked, exstipulate, evergreen; linear. *Flowers* yellowish. —Trees, natives of Europe, Asia, and North America, generally in regions more temperate than those in which the species of spruce abound. Remarkable for the regularity and symmetry of their pyramidal heads; readily distinguished from the genus *A'bies*, by their leaves being more decidedly in two rows; by their cones being upright, and having the scales deciduous; and by the seeds being irregular in form. The nucleus of the seed is exposed at the inner angle, through a considerable opening in the outer testa, as if the junction of the two sides had been ruptured by the rapid enlargement of the nucleus. (*D. Don.*) In Britain, with the exception of *P.* pectinàta, they are solely to be considered as ornamental trees.

The species in British gardens may be thus arranged: —

A. *Natives of Europe, Siberia, and the North-west of Asia.*

1. pectinàta. 3. *Pinsàpo.* 5. *Píchta.*
2. cephalónica. 4. Nordmanni*àna.*

B. *Natives of North America.*

6. balsàmea. 7. Fràser*i.*

C. *Natives of California.*

8. grándis. 9. amábilis. 10. nóbilis. 11. bracteàta.

D. *Natives of Mexico.*

12. religiòsa. 13. hirtélla.

E. *Natives of Nepal.*

14. Webb*iàna.* 15. *Píndrow.*

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A. *Natives of Europe, Siberia, and the North-west of Asia.*

♀ 1. *P.* PECTINA'TA. The Comb-like-*leaved* Silver Fir.

*Synonymes.* *A'*bies of Pliny; Pìnus *P*ìcea *Lin. Sp. Pl.* 1420.; *P. A'*bies *Du Roi Harbk.* ed. Pott. t. 2. p. 133.; *A'*bies álba *Mill. Dict.* No. 1.; *A. T*áxi fòlio *Tourn. Inst.* p. 585.; *A.* vulgàris *Poir. Dict. Encyc.* 6. p. 514.; *A.* pectinàta *Dec. Fl. Fr.* 2. p. 275.; *A. t*axifòlia *Hort. Par.*; *A. P*ìcea *Lindl.* in *Penn. Cyc.* No 1.; *A.* excélsa *Link Abhand.*, &c., jahr 1827, p. 182.; Spanish Fir; Sapin commun, Sapin à Feuilles d'If, Sapin blanc, Sapin argenté, Sapin en Peigne, Sapin de Normandie, *Fr.*; weiss Tanne, Edeltanne, *Ger.*; Abete argentino, *Ital.*

*Engravings.* Lamb. Pin., ed. 2., l. t. 40.; N. Du Ham., 5. t. 82.; the plate of this species in Arb. Brit., 1st edit., vol. viii.; our *fig.* 1939. of the natural size, and *fig.* 1938. to our usual scale.

*Spec. Char., &c.* Leaves solitary, flat, obtuse; 2-ranked, with their points turned up. Cones axillary, cylindrical, erect; scales with a long dorsal bractea. Anthers with a short crest, with two teeth. Buds short, egg-shaped, blunt; of a reddish yellow, with from 16 to 20 blunt scales. Leaves from $\frac{1}{2}$ in. to 1 in. long, stiff, turned up at the points; of a shining dark green above, and with two lines of silvery white on each side of the midrib beneath. Cones from 6 in. to 8 in. long, and from $1\frac{1}{2}$ in. to 2 in. broad; cylindrical; green when young, afterwards reddish, and when ripe brown. Scale $\frac{1}{6}$ in. to $1\frac{1}{4}$ in. long, and $1\frac{1}{4}$ in. broad. Seeds variously angular, $\frac{3}{8}$ in. long, and $\frac{3}{12}$ in. broad. Cotyledons 5. A lofty tree. Central Europe, and the West and North of Asia; rising on mountains to the commencement of the zone of the Scotch pine. Height 80 ft. to 100 ft., rarely 150 ft. Introduced in 1603. The blossoms appear in May, and the cones are matured in the October of the following year.

*Varieties.*

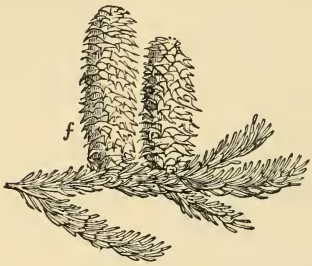
♀ P. *p.* 2 *tortuòsa* Booth.—Branches and branchlets remarkably twisted or crooked.

♀ P. *p.* 3 *fòliis variegàtis.* — Leaves variegated.

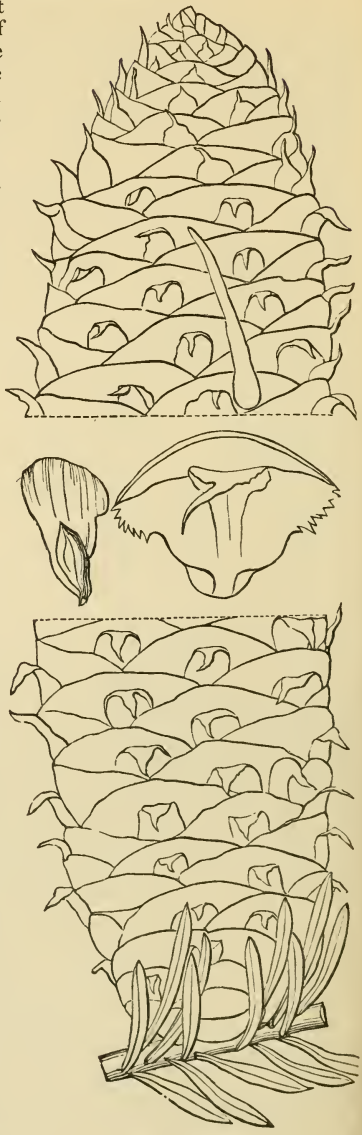
♀ P. *p.* 4 *cinèrea.* Pìnus *P*ìcea cinèrea *Baum. Cat.* ed. 1835. — A low plant with greyish bark, not yet introduced.

The silver fir is the noblest tree of its genus in appearance, and the only species worthy of cultivation in Britain for its timber. The rate of growth

of the tree is slow when young, but rapid after it has attained the age of 10 or 12 years. Cones with fertile seeds are seldom produced before the tree has attained its 40th year; though cones without seeds often appear before half that period has elapsed. The female catkins are often produced for years together, without any males appearing on the same tree. Young trees are apt to lose their leaders by very severe spring frosts; and, hence, we frequently find old silver firs with forked trunks and branchy heads. The wood of the silver fir is elastic, and the




1938. *P.* pectinàta.



1939. *P.* pectinàta.

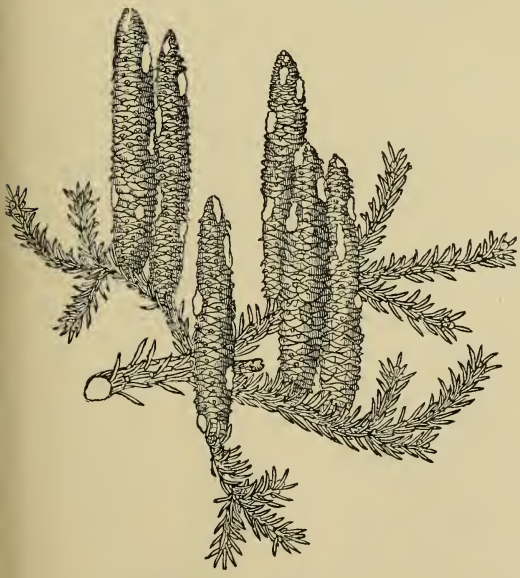
colour is whitish. The grain is irregular, as the fibres which compose it are partly white and tender, and partly yellow, or fawn-coloured, and hard. The narrower the white lines are, the more beautiful and solid is the grain of the wood. The wood of a tree 80 years old weighs 66 lb. 14 oz. per cubic foot green, and 41 lb. 5 oz. when dry; while that of a tree 40 years old weighs only 37 lb. 9 oz. when dry. It shrinks considerably in drying, like all white woods. It is used for planks and carpentry of all kinds, for the masts of small vessels, for joists and rafters, and for building the boats used for navigating rivers. It is said to endure a long time when used as piles, and to be much employed in Holland for that purpose. From the resin of this tree are manufactured Strasburg turpentine, colophony, and white pitch. The silver fir, like all the other *Abiétinæ*, will attain a large size on soils of a very opposite description; but a loam, rather rich and deep than otherwise, appears to suit it best. The silver fir requires a low situation, comparatively with the spruce fir, not being nearly so hardy as that tree, either when in the nursery or full grown. The cones, which are produced in abundance in Britain, are apt to shed their seeds in spring; they ought to be gathered in October or November, and kept in a dry place till the sowing season. The

seeds may be easily separated from them by a very slight exposure to the sun, and then by thrashing them, without having recourse to the kiln. The seeds should be sown, according to Sang, in March, and at such a distance as to allow the plants to rise 1 in. apart; and the covering, he says, should be a full inch thick. When the plants are 2 years old, they may be transplanted into nursery lines; and, after being 2 years in that situation, they may either be again transplanted in the nursery, to a greater distance apart, or removed to where they are finally to remain.

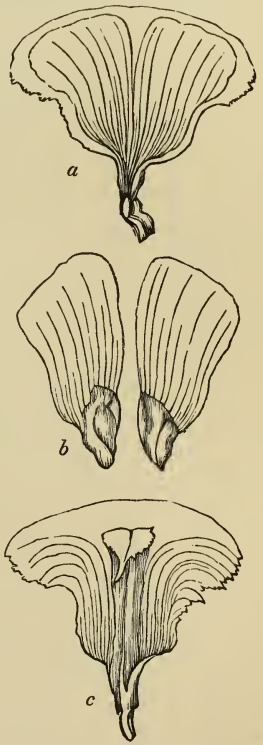
### ☨ 2. *P.* (p.) CEPHALO'NICA. The Cephalonian Silver Fir.

*Identification.* Gard. Mag., vol. xv. p. 238.
*Synonymes.* *A*bies cephalónica *Arb. Brit.* 1st edit. p. 2325.; *A. t*axifòlia *Hort.*; *A.* Luscombeàna Hort.; Koukounaria and Elatos, *in Cephalonia*; Mount Enos Fir.
*Engravings.* Our *figs.* 1940. to 1944.

*Spec. Char., &c.* Cones erect. Leaves subulate, flat; dark green above, and silvery beneath; tapering from the base to the summit, which terminates in a sharp spine. Petioles very short, dilated lengthwise at the point of their attachment to the branches; the dilated part of a much lighter green than the rest of the leaf. Scales of the cones closely resembling those of *P.* pectinàta. A tree. Cephalonia, on the Black Mountain, the highest point of which is the Mount Enos of the ancients, between 4000 ft. and 5000 ft. above the sea. Height 50 ft. to 60 ft. Introduced in 1824.

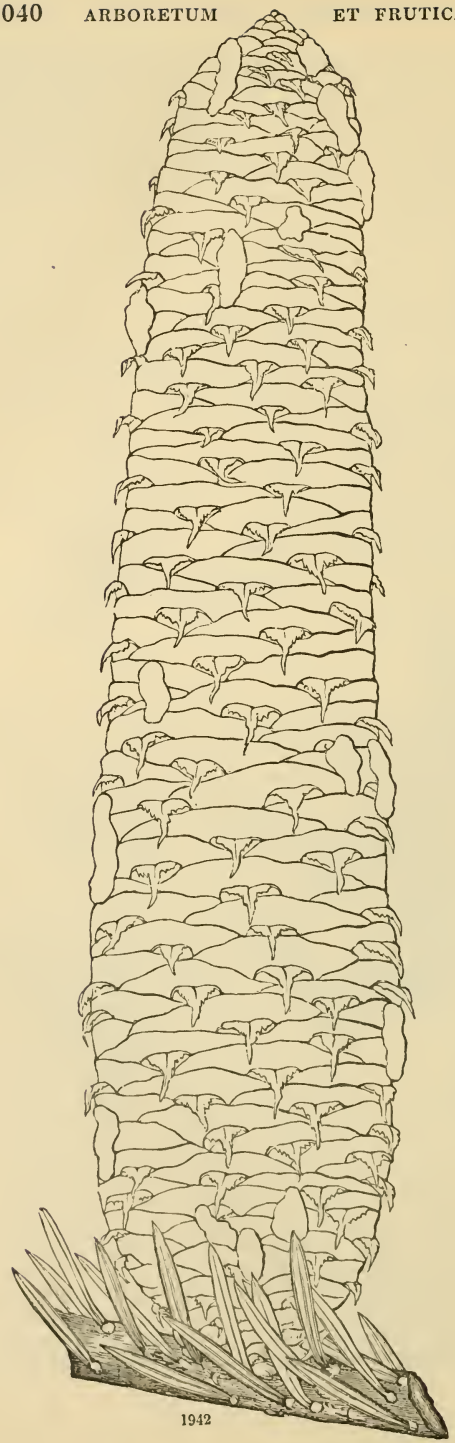


1940. *P.* (p.) cephalónica.

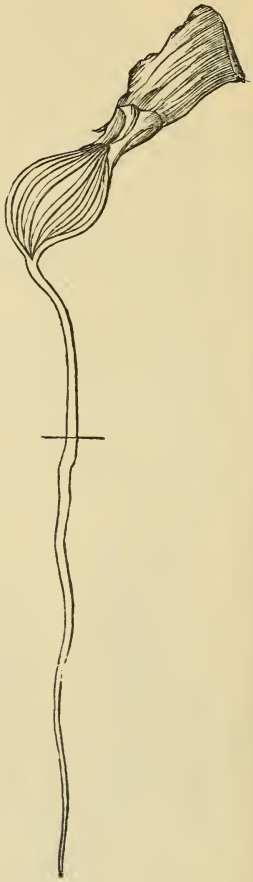



1941. *P.* (p.) cephalónica.

The bristle-pointed leaves and dilated petioles of young plants render the Cephalonian fir very distinct in appearance from the common silver fir, but we doubt very much if it can be considered a different species; it is, however, at all events, a marked and most beautiful variety. *Fig.* 1940. is a portrait of one of the branches of this tree, imported by H. L. Long, Esq., of Hampton Lodge, Surrey, to whom the seeds were first sent from Cephalonia by General



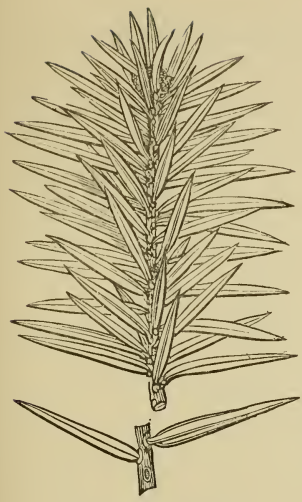
1942



1943.

1944.

*P.* (p.) *cephalonica.*



1945. *P.* (p.) cephalónica.

1946. *P.* (p.) cephalónica.

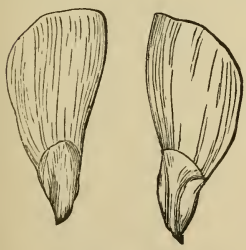
Sir C. J. Napier. *Fig.* 1942. is a cone of the natural size; *fig.* 1941. scales and seeds of the natural size; *fig.* 1944. terminal buds of the natural size; and *fig.* 1943. a seedling plant of the natural size just emerged from the soil. A great quantity of cones have been lately imported, and this fir is now extensively distributed.

1949.

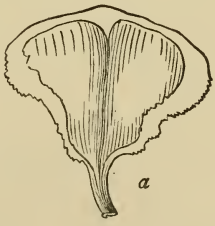
♀ 3. *P.* (p.) *PINSA'PO.* The Pinsapo Silver Fir.

*Identification.* Gard. Mag., vol. xv. p. 109.
*Synonymes.* *A'bies Pinsàpo* Boissier in Bibl. Univ. de Genève, t. 13. p. 406.; Mount Atlas Cedar, *Dec. MS.*
*Engravings.* Our *figs.* 1947. and 1948. from scales and seeds received from M. Vilmorin; and *fig.* 1949. from a young plant raised from one of these seeds.

*Spec. Char., &c.* Leaves disposed around the branches, from 3 to 5 lines long, nearly terete, and entire at the apex. Cones ovate, with the bracts concealed by the scales or carpels, and much shorter than these are. (*Bois.*)



1947. *P.* (p.) *Pinsàpo.*



1948. *P.* (p.) *Pinsàpo.*

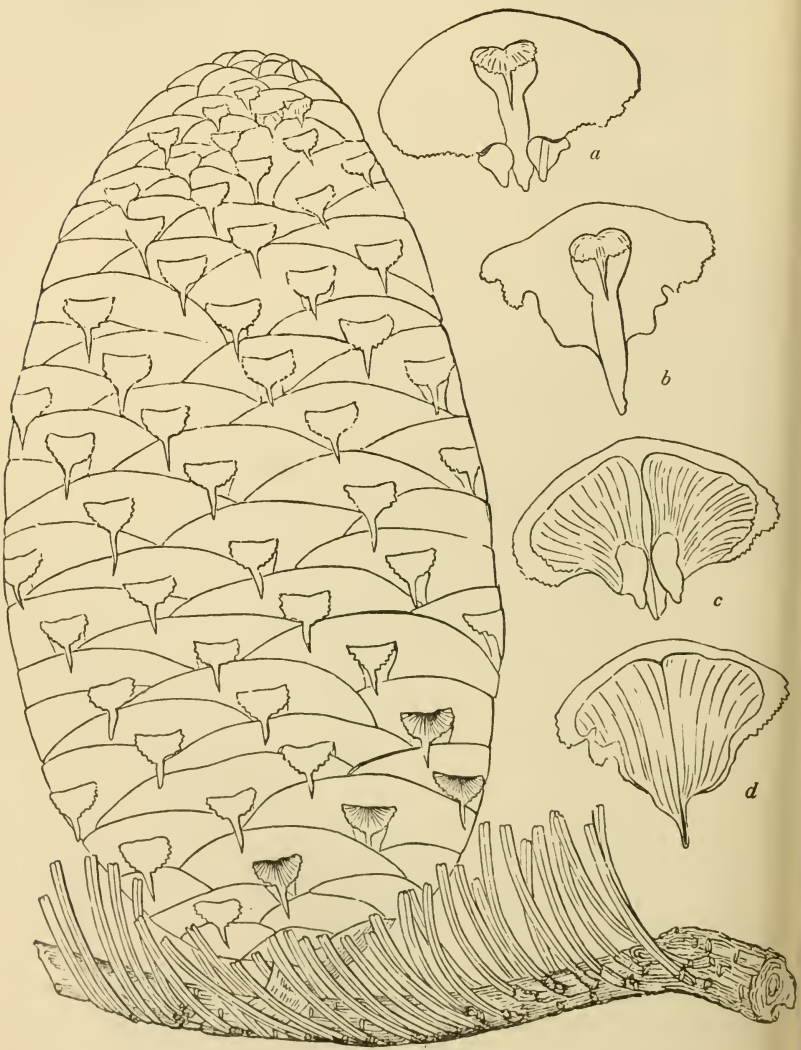
A tree. Sierra de la Nieve, and on other mountains between Ronda and Malaga, 3500 ft. above the level of the sea. Height 60 ft. to 70 ft. Introduced in 1839, by seeds, which have been extensively distributed. (*Gard. Mag.*)

Apparently a variety of the common silver fir.

### ♀ 4. *P.* (P.) NORDMANNIA'NA. Nordmann's Silver Fir.

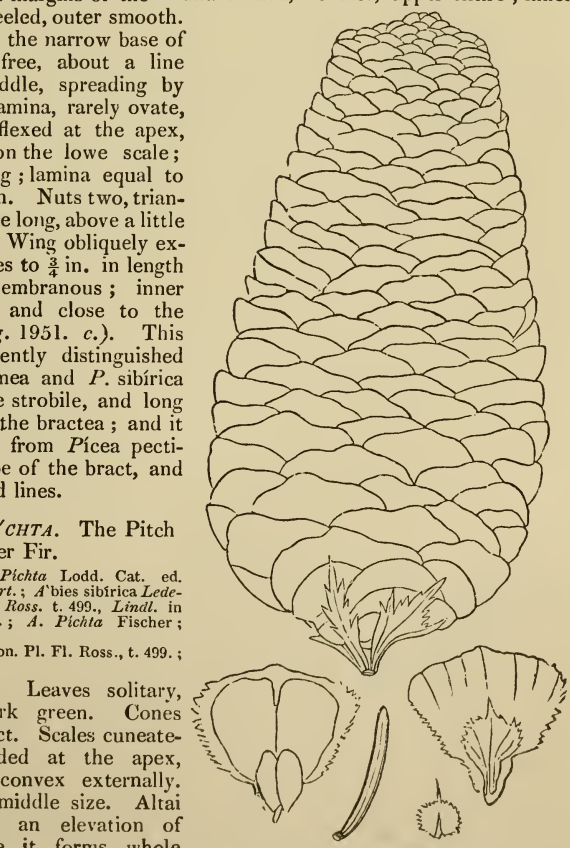
*Synonymes.* Pinus Nordmanniana Stev. Bull. Soc. Nat. Mos. 1838, Gard. Mag. 1839 p. 226.
*Derivation.* Named in honour of *Professor Nordmann* of Odessa, who discovered it on the summit of Adshar.
*Engravings.* Bull. Soc., &c., l. c.; Gard. Mag., l. c., fig. 43.; and our *fig.* 1950.

*Spec. Char., &c.* Leaves solitary, curved upwards, of unequal length. Strobiles erect, ovate; scales very obtuse; bracts cuneate, with the apex reflexed, obcordate, long-mucronate, incumbent on the lower scale. (*Steven.*) An evergreen tree. North of Asia, on the summit of Adshar, above Guriel, towards the sources of the Kur, on the banks of the Nataneb, at the height of 6000 ft. Height 80 ft. to 90 ft., with a trunk 3 ft. in diameter, and a smooth bark. Probably a variety of the silver fir. Not yet introduced.




1950. *P.* Nordmanniana.

This is said to be a finer tree than the common silver fir, from its silvery leaves and abundant strobiles. The branches are dense, about 2 in., scarcely ever 3 in., thick, and regularly disposed; the lower horizontal, the upper springing at a more acute angle. At from 14 to 17 years old the tree begins to bear fruit at top. When full-grown, the whole crown is covered, from a fourth part of its height, with large, conical, erect strobiles, solitary or in twos or threes, and coated over with a resinous exudation. The seeds ripen about the end of September, when they immediately fall off with the scales, the axis often remaining for the whole year. The wood is harder than that of the common silver fir. The male catkins have not been seen. The female strobiles are sessile, or on very short peduncles, erect, 5 in. long, and $2\frac{1}{2}$ in. in diameter. Rachis 2 or 3 lines thick, gradually attenuated, ligneous, rough with tubercles spirally disposed for the insertion of the scales. There are 12 or 13 of these spiral lines, each containing 8 tubercles in its circumvolution, making a total of about 100 florets, or 200 seeds, in each strobile. Scales closely adpressed; superior (*fig.* 1950. *a*, *c*) cup-shaped, narrow at the base for about 2 lines in length, then suddenly dilated into a lamina, at first straight and of 3 lines broad, afterwards greatly expanded, somewhat recurved, and nearly $1\frac{1}{2}$ in. in breadth, which is also the length of the scale itself; inferior (*fig.* 1950. *b*, *d*) much shorter, lamina with a subreniform base, triangularly crenate. Lateral margins of the lamina eroded, dentate, upper entire; inner surface slightly keeled, outer smooth. Bract adnate to the narrow base of the scale, then free, about a line broad at the middle, spreading by degrees into a lamina, rarely ovate, often cordate, reflexed at the apex, and incumbent on the lowe scale; mucro $1\frac{1}{2}$ line long; lamina equal to the scale in length. Nuts two, triangular ovate, $1\frac{1}{3}$ line long, above a little broader, smooth. Wing obliquely expanded by degrees to $\frac{3}{4}$ in. in length and breadth, membranous; inner margin straight, and close to the other wing (*fig.* 1951. *c.*). This species is sufficiently distinguished from *P*ícea balsàmea and *P.* sibírica by the size of the strobile, and long reflexed point of the bractea; and it differs still more from *P*ícea pectinàta, in the shape of the bract, and its upward curved lines.



1951. *P.* (p.) *Pichta.*

### ♀ 5. *P.* (P.) *PI'CHTA.* The Pitch Silver Fir.

*Synonymes.* Pinus *Pichta* Lodd. Cat. ed. 1836; *P.* sibírica *Hort.*; *A*bies sibírica *Ledebour Icon. Pl. Fl. Ross.* t. 499., *Lindl.* in *Penny Cyc.*, No. 2.; *A. Pichta* Fischer; Pichta, *Russ.*

*Engravings.* Led. Icon. Pl. Fl. Ross., t. 499.; and our *fig.* 1951.

*Spec. Char., &c.* Leaves solitary, tetragonal, dark green. Cones cylindrical, erect. Scales cuneate-obovate, rounded at the apex, quite entire, convex externally. A tree of the middle size. Altai Mountains, at an elevation of 4000 ft., where it forms whole

forests; towards an elevation of 5272 ft., it gradually becomes more rare. Height 30 ft. to 50 ft. Introduced in 1820.

It differs from a silver fir chiefly in having the leaves closer set on the branches, and not so silvery beneath. Professor Don suspects it to be only the Siberian variety of *Pícea pectinàta*, which ranges from the Atlantic to the Pacific.

B. *Natives of North America.*

♀ 6. *P.* BALSA'MEA. The Balm *of Gilead, or American*, Silver Fir.

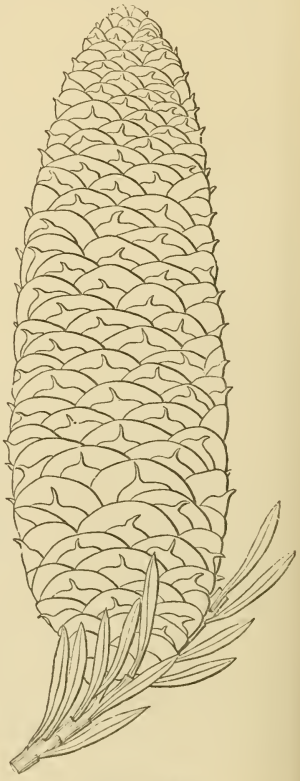
*Synonymes.* *P*inus balsàmea *Lin. Sp. Pl.* 1421.; *P. A*'bies balsàmea *Marsh. Arb. Amer.* p. 102. *A*'bies *T*áxi fólio, &c., *Hort. Angl.* 2. p. 2.; *A.* balsamínea *N. Du Ham.* 5. p. 295.; *A.* balsamífera *Michx. N. Amer. Syl.* 3. p. 191.; Balsam Fir; le Baume de Gilêad, le Sapin Baumier de Gilêad, *Fr.*; Balsam Fichte, Balsam Tanne, *Ger.*; Pino balsamífero, *Ital.*

*Engravings.* Lamb. Pin., ed. 2., l. t. 41. f. 2.; Mich. N. Amer. Syl., 3. t. 150.; and our *fig.* 1954. to our usual scale; and *figs.* 1952. and 1953. of the natural size.

*Spec. Char., &c.* Leaves solitary, silvery beneath, apex emarginate or entire; somewhat recurved, and spreading. Cones cylindrical, violet-coloured; and pointing upwards. (*Michx.*) Leaves $\frac{3}{4}$ in. long. Cones 4 in. to $4\frac{1}{2}$ in. long, and $\frac{1}{2}$ in. broad; scales from $\frac{5}{8}$ in. to $\frac{6}{8}$ in. broad, and $\frac{6}{8}$ in. long. Seed, with the wing, $\frac{6}{8}$ in. long, and $\frac{2}{8}$ in. broad. Seed very small, irregular; about half the size of that of the common silver fir. Cotyledons, ? A tree.

1952. *P.* balsàmea.

Canada, Nova Scotia, New England, and on the Alleghany mountains, in high and cold situations. Height 20 ft. to 30 ft., rarely 40 ft. Introduced in 1696. Flowering in May, and ripening its cones in the autumn following.



1953. *P.* balsàmea.

*Variety.*

♀ P. *b.* 2 *longifólia* Booth. — Leaves longer than in the species, with the branches somewhat more upright.

1954. *P.* balsàmea.

A pyramidal tree, in general appearance resembling the silver fir of Europe; but seldom found, even in America, above 20 or 30 feet in height, and not of more than the same number of years in duration. The rate of growth, in the climate of London, is rather more rapid than that of the silver fir, the tree attaining the height of $10\frac{1}{2}$ ft. in as many years, and arriving at maturity in 20 or 25 years; soon after which it dies. Seeds are generally imported, and cones are sometimes ripened in this country.

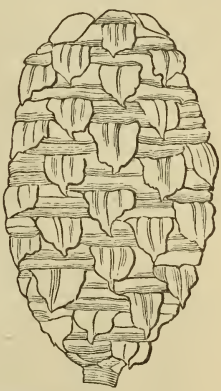
♀ 7. *P.* (B.) FRA'SERI. Fraser's, *or the double Balsam*, Silver Fir.

*Synonymes.* *P*inus Frà*seri* Pursh Fl. Amer. Sept. 2. p. 639., Lamb. Pin. ed. 2. l. t. 42.; *A*'bies Frà*seri* Lindl. in Penny Cyc., No. 5.

*Engravings.* Lamb. Pin., ed. 2., l. t. 42.; and our *figs.* 1956, 1957.

*Spec. Char., &c.* Leaves linear, emarginate, silvery beneath. Cones oblong, squarrose. Bracteoles somewhat leafy, obcordate, mucronate, half-exserted, reflexed. (*Don.*) A tree so closely resembling the preceding kind, that it is unnecessary to describe it. Pursh found it on high mountains in Carolina, resembling, he says, *P.* balsàmea in several respects,

1955. *P.* Fràseri.



1956. *P.* Fràseri.

but differing, at first sight, in being a smaller tree, the leaves shorter and more erect, and the cones not one fourth the size. Introduced in 1811.

The original tree is in the Hammersmith Nursery, where, in 1837, it was 15 ft. high, and had, for two or three years, produced cones, but no male catkins. This last circumstance has given rise to the idea that the male and female are produced by different trees, which is exceedingly improbable. Propagated by cuttings.

C. *Natives of California.*

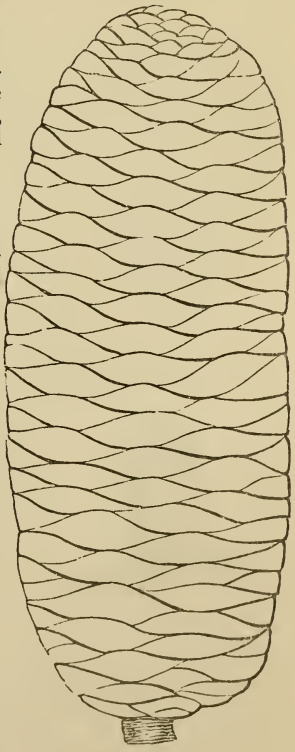
☥ 8. *P.* GRA'NDIS. The great Silver Fir.

*Synonymes.* Pinus grándis *Dougl. MS. Lamb. Pin.* 3. t. 94.; *A*bies grándis *Lindl.* in *Penny Cycl.* No. 3.; the great Californian Fir.

*Engravings.* Lamb. Pin., 3. t. 94.; our *fig.* 1959. from Lambert's Pinus, vol. iii.; and *figs.* 1957. and 1958. from Douglas's specimens in the herbarium of the Horticultural Society, and from the tree in the gar en.

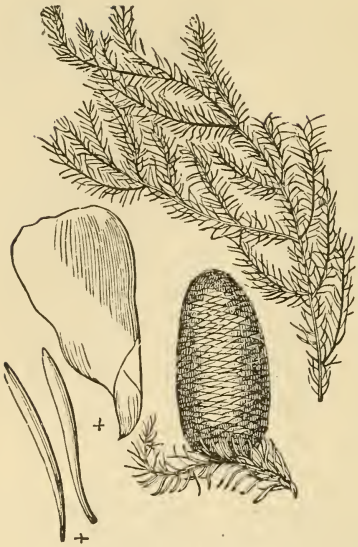
*Spec. Char., &c.* Leaves flat, obtuse, emarginate, pectinate, silvery beneath. Cones cylindrical; bracteoles ovate, acuminate, irregularly dentate, very short. (*D. Don.*) Leaves from $\frac{3}{4}$ in. to 1 in. long. Cones,

1957. *P.* grándis.



1958. *P.* grándis.

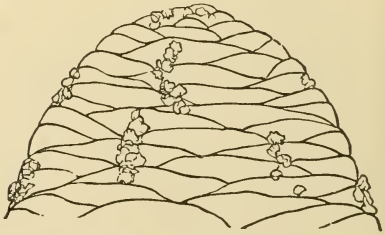
according to Lambert, $6\frac{1}{2}$ in. long, and $3\frac{1}{2}$ in. broad; but in Douglas's specimens the largest cones are only $3\frac{1}{2}$ in. long, and 2 in. broad, the others being much smaller. Scale $\frac{3}{4}$ in. long, and $\frac{3}{4}$ in. broad. Seed small; with

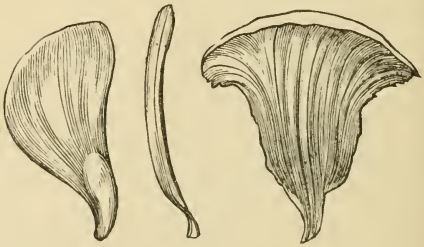


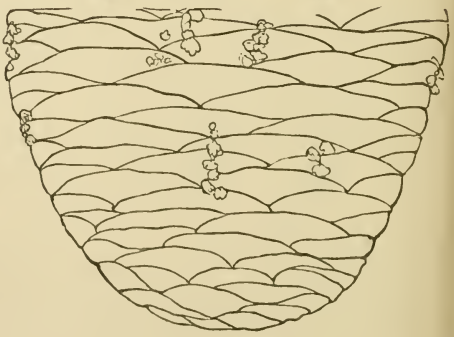
1959. *P.* grandis.

the wing $\frac{3}{4}$ in. long, and $\frac{3}{8}$ in. broad. A noble tree. Northern California, in low moist valleys, where it attains the height of 200 ft. Introduced in 1831, and as yet rare in England.

A noble tree, akin to *P.* balsàmea, with a brown bark. Leaves pectinate and spreading, linear, roundish at the apex, emarginate, callous on the margin, quite entire; green and shining above, silvery beneath, somewhat dilated towards the apex; 1 in. long. Cones lateral, solitary, cylindrical, obtuse, very similar to those of *P.* Cèdrus, but larger, 6 in. long, of a chestnut-brown colour. Scales transverse, very broad, lamelliform, deciduous, stalked, incurved on the margin, much shorter than the scales. Seeds oblong, with a coriaceous testa, and a very broad wing.







1961. *P.* amabilis.

† 9. *P.* AMA'BILIS. The lovely Silver Fir.

*Synonyme.* Pinus amâbilis *Douglas MS.*

*Engravings.* Our *figs.* 1960, 1961. from Douglas's specimens in the herbarium of the Hort. Soc.

*Spec. Char., &c.* Leaves flat, obtuse, entire. Cones cylindrical; bracteoles very short, pointed. Scales triangular; the upper margin rounded, entire. Leaves, on Douglas's specimen, $1\frac{1}{4}$ in. long; and on the young plant in the Horticultural Society's Garden,

1960. *P.* amabilis.

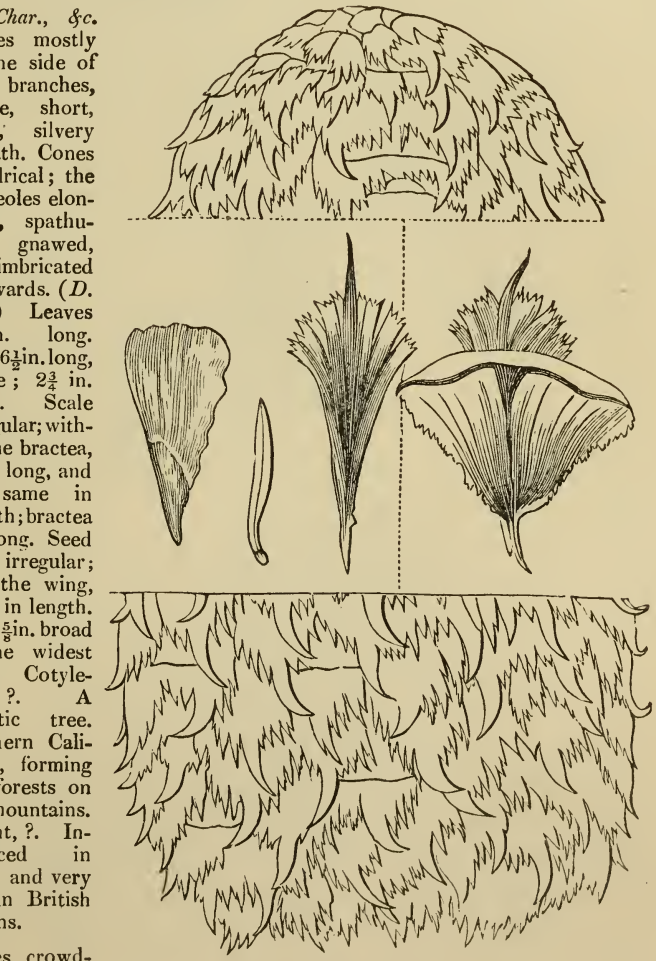
$\frac{3}{4}$ in. long. Cones 6 in. long, and $2\frac{1}{2}$ in. broad. Scales $1\frac{1}{4}$ in. broad, and about $1\frac{1}{4}$ in. long. Seed, with the wing, 1 in. long;

wing $\frac{5}{8}$ in. broad. The cone in Douglas's specimen is about twice as large as those sent home by him of *P.* grándis, and the leaves are entire, instead of being emarginate; but, in other respects, we have been quite unable to discover any difference, either between the dried specimens or the young plants, worthy of being considered specific. The cones were sent home by Douglas in 1831, without any further information than the name. As there are young plants in the Chiswick Garden, all that is here said must be considered as provisional, till these plants have shown some characteristic features by which they may be either distinguished from, or associated with, other species.

### ☨ 10. *P.* NO'BILIS. The noble, *or large-bracted*, Silver Fir.

*Synonymes.* *P*inus nóbilis *Doug. MS.*, *Lamb. Pin.* 2. last fig.; *A.* nóbilis *Lindl.* in *Penny Cyc.* No. 5.
*Engravings.* Lamb. Pin. Icon.; and our *figs.* 1962. and 1963., from Douglas's specimens in the herbarium of the Horticultural Society.

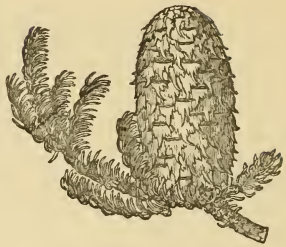
*Spec. Char., &c.* Leaves mostly on one side of the branches, falcate, short, acute, silvery beneath. Cones cylindrical; the bracteoles elongated, spathulate, gnawed, and imbricated backwards. (*D. Don.*) Leaves $1\frac{3}{4}$ in. long. Cone $6\frac{1}{2}$ in. long, sessile; $2\frac{3}{4}$ in. broad. Scale triangular; without the bractea, $1\frac{1}{4}$ in. long, and the same in breadth; bractea $\frac{5}{8}$ in. long. Seed small, irregular; with the wing, $1\frac{1}{4}$ in. in length. Wing $\frac{5}{8}$ in. broad in the widest part. Cotyledons, ?. A majestic tree. Northern California, forming vast forests on the mountains. Height, ?. Introduced in 1831, and very rare in British gardens.



1962. *P.* nóbilis.

Leaves crowded, 2-rowed, linear,

falcate, for the most part acute, compressed trigonal; flat above, marked with a depressed line; silvery beneath; scarcely 1 in. long. Cones solitary, lateral, cylindrical, thick, brownish; 6 in. to 7 in. long, and 8 in. to 9 in. in circumference; scales lamelliform, stipulate, copiously covered with minute down; incurved, and quite entire on the margin. Bracteoles much exserted, spathulate, adpressed backwards, imbricated; laminæ dilated, membranaceous; points elongated, awl-shaped, rigid. Seeds oblong, with a coriaceous testa; wing broad, axe-shaped, thinly membranaceous, pale-coloured; nearly allied to *P.* Fràser*i*, but with cones five times as large. (*Lamb.*) According to Douglas (*Comp. Bot. Mag.*, ii. p. 147.), this is a majestic tree, forming vast forests upon the mountains of Northern California, and producing timber of excellent quality. "I spent three weeks in a forest composed of this tree," he says, "and, day by day, could not cease to admire it."



1963. *P.* nóbilis.

♀ 11. *P.* BRACTEA'TA. The *leafy*-bracted Silver Fir.

*Synonymes.* Pìnus bracteàta *D. Don* in *Lin. Trans.* 17. p. 443., *Lamb. Pin.* 3.; *P.* venústa *Dougl.* in *Comp. to Bot. Mag.* 2. p. 152.

1964. *P.* bracteàta.

*Engravings.* Lamb. Pin., 3. t. 91. ; and our *fig.* 1964. from Lambert.

*Spec. Char., &c.* Leaves 2-rowed, linear, mucronate, flat, silvery beneath. Cones ovate. Bracteoles 3-lobed ; the middle division very long, leaf-like, recurved. (*D. Don.*) Cones 4 in. long. Bractea nearly 2 in. long. Leaves 2 in. long. A large tree. California. Height 121 ft. Discovered by Douglas in 1832, and about the same period by Dr. Coulter, but not yet introduced.

The trunk rises to the height of 120 ft.; is very slender, not exceeding 2 ft. in circumference ; and as straight as an arrow. The upper third of the tree is clothed with branches, giving it the appearance of an elongated pyramid. The branches are spreading ; the lower ones are decumbent. The bracteas are low and recurved, and but little changed from the ordinary leaves, which gives the cones a singular appearance. When on the tree, being in great clusters, and at a great height withal, the cones resemble the inflorescence of a Bánksia.

D. *Natives of Mexico.*

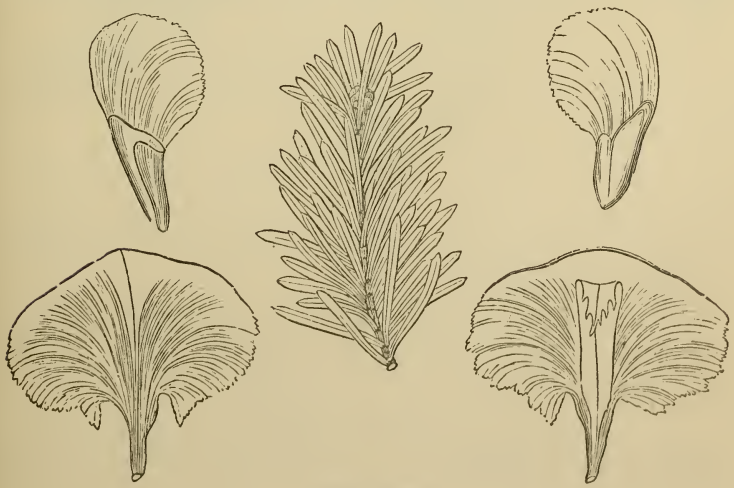
☤ 12. *P.* RELIGIO'SA. The sacred *Mexican* Silver Fir.

*Synonyme.* Pinus religiòsa *Humb. et Kunth Nov. Gen. et Sp. Pl.* 2. p. 5., *Schiede et Deppe* in *Schlecht. Linnæa* 5. p. 77. *Lamb. Pin.* 1. t. 43. ; *A'bies* religiòsa *Lindl.* in *Penny Cyc.*

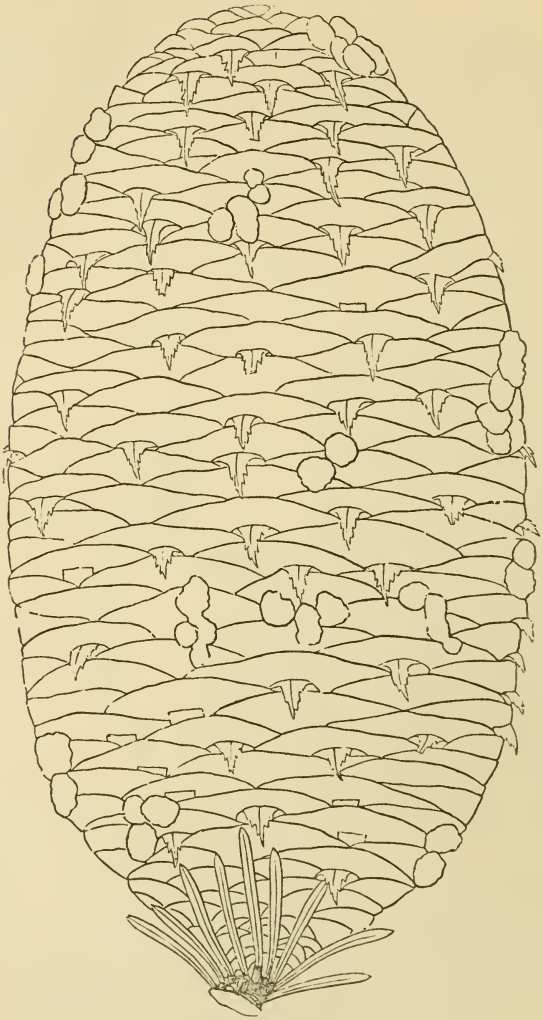
*Engravings.* Lamb. Pin., 1. t. 43., and vol. 3. t 95. ; and our *figs.* 1965. to 1967. from specimens sent home by Hartweg.

1965. *P.* religiòsa.

*Spec. Char., &c.* Leaves linear, acute, quite entire, somewhat pectinate. Cones roundish-oval ; scales trapezoideo-cordate, lamelliform ; bracteoles the length of the scales, spathulate-oblong, sharply dentato-serrate ; wings of the seed plicate. (*D. Don.*) Leaves $1\frac{1}{2}$ in. long. Cones $2\frac{3}{4}$ in. long, and $2\frac{1}{2}$ in. broad. Seed small and irregular. Cotyledons, ?. A tall tree. Mexico, on the mountains of Anganguco, at 8000 or 9000 feet above the sea. Height 100 ft. to 150 ft., with a trunk 5 ft



1966. *P.* religiòsa



1967. *P.* religiosa.

to 6 ft. in diameter. Introduced in 1839, by seeds sent to the Horticultural Society by Hartweg.

Easily recognised from every other species of silver fir by the shortness of its cones, which, in form and structure, bear a marked resemblance to those of the cedar of Lebanon, although they are considerably smaller. From the elevated situation on which the tree grows, there can be little doubt of its proving perfectly hardy in Britain.

♀ 13. *P.* HIRTE'LLA. The hairy Pine.

This species, which is the *A*'bies hirtélla *Lindl.* in *Penn. Cyc.* No. 11., *P*ìnus hirtélla *Humb. et Kunth* l. c.. has the young branches covered with hairs. Leaves arranged in 2 rows, flat, acute, glaucous beneath : about 1¼ in. long.

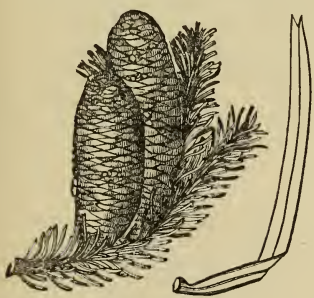
Flowers and cones unknown. Found on the mountains of Mexico, at an elevation of 8000 or 9000 feet. A low tree, from 18 ft. to 20 ft. high; not yet introduced.

E. *Natives of Nepal.*

♀ 14. *P.* WEBBIA'NA. Webb's *purple-coned* Silver Fir.

*Synonymes.* *P*inus Webb*iàna* Wall. in Litt., Lamb. Pin. ed. 2. 2. t. 44.; *P.* spectábilis *Lamb. Monog.* 2. p. 3. t. 2.; *A*'bies Webb*iàna* Lindl. in Penn. Cyc. No. 7., Royle Illust.; Chilrow, and the Oonum, or purple-coned fir, *in the Himalayas.*
*Engravings.* Lamb. Pin., ed. 2., t. 44.; Monog., 2. t. 2.; and our *figs.* 1968. and 1969.

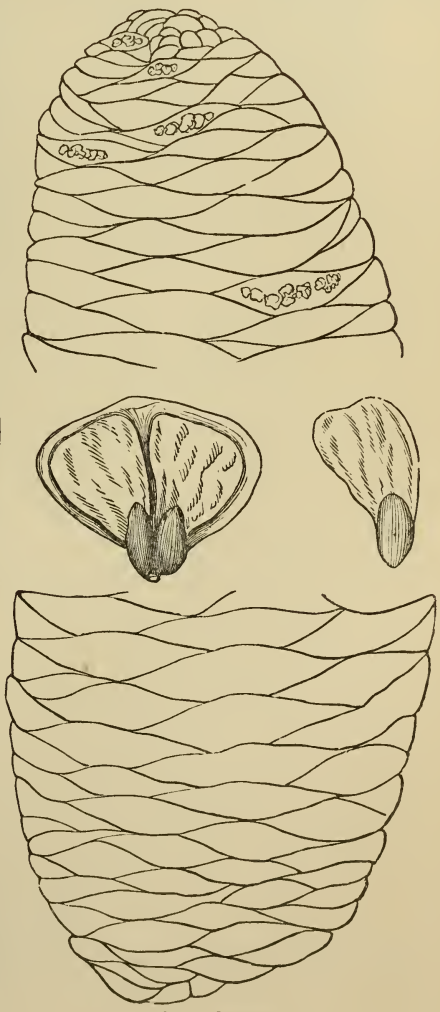
*Spec. Char., &c.* Leaves 2-rowed, linear, flat, obtusely emarginate, silvery beneath. Cones cylindrical; scales kidney-shaped, roundish; bracteoles oblong, apiculate. (*D. Don.*) Buds round, pointless, thickly covered with a yellow resin, by which alone the tree may be readily distinguished from every other species of *P*ícea. Cones from $6\frac{1}{2}$ in. to 7 in. long, and above 2 in. broad. Leaves of young plants, in the Horticultural Society's Garden, from $1\frac{1}{2}$ in. to $2\frac{1}{4}$ in. long. Scale above 1 in. long, and $1\frac{1}{4}$ in. broad. Seeds, with the wing, $\frac{3}{4}$ in. long; wing $\frac{5}{8}$ in. broad in the widest part. Seeds $\frac{5}{16}$ in. long, and $\frac{3}{16}$ in. broad. In general they are smaller, but longer, and with a sharper point, than those of the common silver fir; and, like the seeds of the common silver fir, they are of a brownish purple colour.



1968. *P.* Webb*iàna.*

Cotyledons, ?. A large, handsome, pyramidal tree. Nepal, on the Alps of Gossainthan. Height 80 ft. to 90 ft., with a trunk from 3 ft. to 4 ft. in diameter near the base. Introduced in 1822. Cones purple, in one or two instances produced in England.

Branches numerous, spreading horizontally, much divided; densely clothed with leaves disposed in whorls; covered with a pale, ash-coloured, rough, scaly bark; bent upwards at



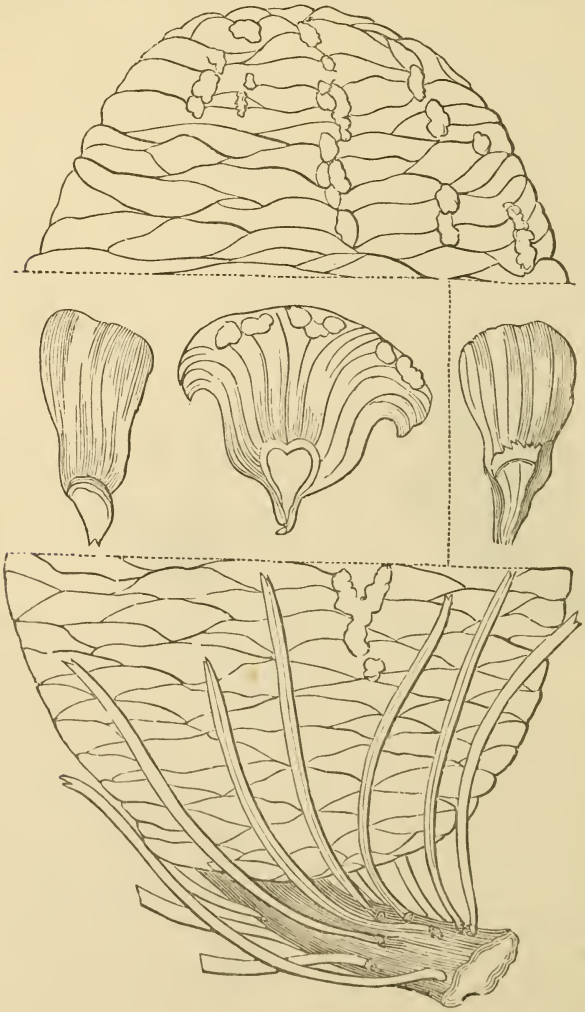
1969. *P.* Webb*iàna.*

the apex. Wood compact, whitish rose-colour. The plant, in the climate of England, appears rather more tender than the silver fir; being liable, from its vegetating very early in spring, to have its leading shoots pinched by the frost. After a series of years, however, and propagation from seeds ripened in this country, it will, in all probability, accommodate itself in a considerable degree to the peculiarities of our climate. When once the tree begins to bear cones, they may be fecundated with the male blossoms of the common silver fir, and thus a hybrid produced somewhat hardier than the female parent.

♀ 15. *P. Pi'ndrow.* The Pindrow, *or Tooth-leaved*, Silver Fir.

*Synonymes.* *Pinus Pindrow* Royle Ill. t. 86., Lamb. Pin. 3. t. 92.; *Táxus Lamberti'ana* Wall. Cat.; Pindrow, and sometimes Morinda, *in the Himalayas.*

*Engravings.* Royle Ill., t. 86.; Lamb. Pin., 3. t. 92.; our *figs.* 1970. and 1971. from Royle.



1970. *F. Pindrow.*

*Spec. Char., &c.* Leaves 2-rowed, linear, flat, of the same colour on both sides; sharply 2-toothed at the apex. Crest of the anthers 2-horned. Cones oval; scales trapezoideo-cordate; bracteoles roundish, emarginate, irregularly crenulate. (*D. Don.*) Leaves 3 in. long. Cone $4\frac{3}{4}$ in. long, $3\frac{1}{2}$ in. broad, of an intense purple. A large tree. Kamaon. Height 80 ft. to 100 ft. Introduced in 1837.

1971. *P. Píndrow.*

Professor Don observes that *P Píndrow* is liable to be confounded with *P.* Webbiàna; but that the former is readily distinguished from the latter by its longer and acutely bidented leaves, of nearly the same colour on both surfaces; and by its shorter and thicker cones, with trapezoid-formed scales, and rounded notched bracteoles.

♇ 16. *P.* NA'PTHA *Hort.* The Naptha Pine.

Plants were raised in Knight's Nursery in 1840. Closely resembles *P.* cephalónica, but is without the twist in the petioles of the leaves.

## GENUS IV.

LA'RIX *Tourn.* THE LARCH. *Lin. Syst.* Monœ'cia Monadélphia.

*Identification.* Tourn. Inst., 586.; Bauh. Pin., 493.; Bellon. Arb. Conif., p. 23. 25.
*Synonymes.* Pinus of Lin. and others; *A*bies *Rich.*; Melèze, *Fr.*; Lerchenbaum, *Ger.*; Larice *Ital.*
*Derivation.* From *lar*, fat, Celtic; the tree producing abundance of resin.

*Gen. Char.* The same as in *A*bies; but with the *cones* ovate-conical, erect, and the *carpels* and *bracteas* adherent to the axis. *Leaves* annual, and disposed in groups.

*Leaves* simple, in alternate fascicles, exstipulate, deciduous; linear. *Flowers* reddish or yellowish.—Trees deciduous, some of them of large dimensions; natives of the mountainous regions of Europe, the West of Asia, and of North America; highly valued for the great durability of their timber. The common larch is found extensively on the alpine districts of the South of Germany, Switzerland, Sardinia, and Italy; but not on the Pyrenees, nor in Spain. The Russian larch (*L.* e. sibírica) is found throughout the greater part of Russia and Siberia, where it forms a tree generally inferior in size to *L.* europæ'a. The black, or weeping, larch (*L.* americàna péndula) is a slender tree, found in the central districts of the United States; and the red larch (*L.* americàna rùbra), also a slender tree, is found in Lower Canada and Labrador. In Britain, all the species are ornamental; but the first is the only one at all deserving of culture as a timber tree.

♃ 1. *L.* EUROPÆ'A *Dec.* The European, *or common*, Larch.

*Identification.* De Cand. Fl. Fr., No. 2064.
*Synonymes.* Pinus Làrix *Lin. Sp. Pl.* 1420.; *A*bies *Lin. Hort. Cliff.* 450.; Làrix decídua *Mill. Dict.* No. 1.; Làrix fòlio decíduo, &c. *Bauh. Hist.* 1. p. 265.; Làrix *Bauh. Pin.* p. 493.; *A*bies Làrix *Lam. Illust.* t. 785. f. 2.; Melèze commune, *Fr.*; Lörche, Lorcher-Fichte, gemeiner Lerchenbaum, Terbentinbaum, Europäische Ceder, weisser Lerchenbaum, *Ger.*
*Engravings.* N. Du Ham., 5. t. 79., f. 1.; Lamb. Pin., ed. 2., 2. t. 48.; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1972.

*Spec. Char., &c.* Leaves fascicled, deciduous. Cones ovate-oblong; scales reflexed at the margin, lacerate; bracteoles panduriform. Leaves linear, soft, 1 in. long, Cone from 1 in. to 1¼ in. long, erect. A tall, pyramidal, deciduous tree. Alps of the South of Europe. Height 80 ft. to 100 ft. In cultivation in Britain since 1629. Flowering in March or April; and ripening its cones in the autumn of the same year.

*Varieties.* All the larches in cultivation are, probably, only different forms of the same species; but, as the American larches, which have small fruit, come tolerably true from seed, we shall treat them as one species, and the European larch as another. The latter is characterised by large cones, rapid growth, and robust habit; and the former by small cones, slow growth, and slender habit,

♃ L. *e.* 1 *commùnis* Laws. Man. p. 386.—Branches "aspiring towards their points; branchlets very numerous, and forming a dense conical or pyramidal top; foliage of a light grassy or vivid green; and bark rather more rugged than that of *L.* e. 2 láxa."

♃ L. *e.* 2 *láxa* Laws. l. c.—"True specimens of this variety may easily be distinguished from the others when in nursery rows, by their more rapid growth, more horizontal and less crowded branches, and by the darker green, or somewhat glaucous, colour of the foliage."

♃ L. *e.* 3 *compácta* Laws. l. c.—"In habit of growth, the tree is conical or pyramidal, like the common larch; but its branches are very brittle, or easily broken from the trunk: numerous, horizontal, or slightly bent down near the base; aspiring afterwards, and the larger ones are finally erect towards the point, with pretty regularly verticillate branchlets; towards the centre of the tree, however, these are pendulous, and remarkably thickly interwoven with one another."

♃ L. *e.* 4 *péndula* Laws. l. c.—"Distinguished by the very pendulous habit of its branches, which somewhat resemble those of *L.* americàna péndula; from which, however, it differs in the greater length of its leaves, and the larger size of its cones." A native of the Tyrolese Alps.—L. *e. péndula Godsáll*ii *Gard. Mag.* vol. xv. p. 549., and the figure there given, is a sub-variety; or, more probably, identical with this variety. It was selected by Mr. Godsall from a bed of seedlings of the common larch.—L. *e. rèpens* Laws. l. c. is another sub-variety. The branches spread along the ground to a great distançe. A tree at Henham Hall, Suffolk, planted about 1800, at the height of 8 ft. sends out its branches horizontally, and these, being supported, extend north and south over a covered way more than 80 ft. in length, and 16 ft. in width. Another branch extends to the west about 8 ft.; and on the east the branches droop to the ground and form a perfect curtain, as they do also on the west side. (See *Gard. Mag.*, vol. xv. p. 626.)

♃ L. *e.* 5 *flòre rùbro* Hort. Trans. iv. p. 416.—The flowers vary in shade of red or pink, and some of them are more or less mixed with yellow. The cones are also red, or reddish yellow. The majority of the trees in the Duke of Athol's plantations at Dunkeld and Blair have red flowers.

♃ L. *e.* 6 *flòre álbo.* Larch from the Tyrol, with white Flowers, *Hort. Trans.* l. c.—The leaves of this variety are not different from those of the common larch; but the shoots are said to be much stronger; and the cones white, as well as the flowers.

♃ L. *e.* 7 *sibírica. L.* sibírica *Fisch.*; ? *L.* archangélica *Laws. Man.* p. 389.; *L.* róssica *Sab.* in Hort. Soc. Gard.; *P*ìnus *L.* sibírica *Lodd. Cat.*; the Russian Larch, *Hort. Trans.* iv. p. 416.—There are trees of this variety in the Duke of Athol's plantations, raised from seeds procured from Archangel in 1806. The appearance of the tree is said to be coarser than that of *L.* e. commùnis. It is of much slower growth than the larches of the Tyrol; and the leaves

come out so early in spring, that they are liable to be injured by frost. The female catkins do not expand their flowers till some time after those of the European larch appear. The cones are like those of the American larch.

L. *e.* 8 *dahùrica.* *L.* dahùrica *Laws. Man.* p. 389. — Said to be a stunted, bushy, and irregular-growing tree. Dahuria. Introduced in 1827. Generally propagated by cuttings or layers.

L. 9 *intermèdia.* *L.* intermèdia *Laws. M.* p. 389.; *P*ìnus intermèdia *Lodd. Cat.* ed. 1836; the Altaian Larch. — A very strong luxuriant habit of growth, with pendulous branches, and very large leaves. Introduced in 1816, or before. Lod.

*Other Varieties.* L. *Fràseri Comp. Bot. Mag.* vol. ii. p. 304. was discovered and introduced by J. Fraser and his son, between 1785 and 1817; but it is apparently lost.

The wood of the larch is compact, and of a reddish or brown tinge; and, on favourable soils, is said to be fit for every useful purpose in 40 years' growth; while that of the pinaster requires 60 years, and the Scotch pine 80 years. The greatest drawback to the wood of the larch is its liability to warp. The rate of growth of the larch, in the climate of London, is from 20 ft. to 25 ft. in 10

1972. *L.* europæ'a.

years from the seed; and nearly as great on the declivities of hills and mountains in the Highlands of Scotland. In the course of 50 years, the tree will attain the height of 80 ft. or upwards; and, in its native habitats, according to Willdenow, it lives from 150 to 200 years. The wood, according to Hartig, weighs 68 lb. 13 oz. per cubic foot when green, and 36 lb. 6 oz. when dry; and, according to Kasthoffer, it lasts four times longer than that of any other species of *A*biétinæ. Though the wood of the larch ignites with difficulty, and a fire made of it will, if not attended to, extinguish itself before the wood is half-consumed, yet, if properly managed, the wood of old trees is capable of producing an intense heat. The charcoal is more rich in carbon than that of the spruce or the silver fir, but less so than that of pine or beech. It is very heavy, and weighs 16½ lb. per cubic foot; it is said to be excellent for iron founderies. The bark of young larches is astringent, and it is used in the Alps for tanning leather; where the leaves and young shoots are sometimes given to cattle. The resinous products of the larch are, Venice turpentine, and the manna de Briançon; and both are used in the state in which they are procured from the tree. To obtain the turpentine, trees are chosen

which are neither too young nor too old; and auger holes are made in different parts of the trunk, from which the turpentine flows through slender tubes or gutters to a bucket at the bottom of the tree. The manna is collected from the young shoots and leaves. The larch will grow rapidly upon almost any soil, and in any situation, for the first 20 or 30 years; but it is only in a clear dry atmosphere, on a cold-bottomed soil, somewhat moist on the surface, that its timber is brought to perfection. In plains, and near the sea, it grows rapidly for 30 or 35 years; but, when felled in such situations, the wood is found rotten at the heart, and unfit for any purpose except fuel. This decay of the wood is much aggravated when the larches are planted thick, so as to expose but a small portion of their foliage to the sun, and to retain among their lower branches an atmosphere surcharged with moisture. The larch will grow, and become valuable timber, at a much greater elevation above the sea than the Scotch pine, thriving at the height of 1800 ft. in the Highlands, where the Scotch pine does not attain a timber size at a greater elevation than 900 ft. In Switzerland, Kasthoffer inform us, it is found in the highest perfection in soil composed of the debris of calcareous rocks, as well as in granitic, argillaceous, and schistose soils. An immense mass of valuable matter on the culture and uses of the larch, with a detailed account of the Duke of Athol's plantations in the Highlands of Scotland, will be found in our 1st edition, vol. iv. p. 2353. to 2399.

### ♆ 2. *L.* AMERICA'NA *Michx.* The American Larch.

*Identification.* Michx. N. Amer Syl., 3. p. 213

*Synonymes.* Pìnus larícina *Du Roi Harbk.* ed. Pott. 2. p. 117.; *P.* microcárpa *Willd. Baum.* p. 275.; *A*bies microcárpa *Poir.*; Hackmatack, *Amer.*; Tamarack, *by the Dutch in New Jersey*; E'pinette rouge, *in Canada.*

*Engravings.* Michx. N. Amer. Syl., 3. t 153.; Lamb. Pin., ed. 2., t. 50.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1973.

*Spec. Char., &c.* Leaves short. Cones small, ovate-roundish, with few scales. Leaves from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long. Cones from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long, and from $\frac{3}{8}$ in. to $\frac{4}{8}$ in. broad. A deciduous tree, with a slender trunk. North America, Newfoundland to Virginia. Height 80 ft. to 100 ft. Introduced in 1739. Flowers red or yellow. Cones small, brown, or brownish red; May.

*Varieties.* None of the forms of this species can be at all compared with the European larch, in point of utility, or even ornament.

♆ L. *a.* 1 *rùbra.* *L.* microcárpa *Laws. Man.* p. 388.; *P*ìnus microcárpa *Pursh Fl. Amer. Sept.* p. 645., *Lodd. Cat.*; E'pinette rouge, *Canada.* — Tree medium-sized, upright, of a slender, conical, or pyramidal habit of growth, but not so much so as in *L.* a. péndula. Branches horizontal, or slightly pendulous, except the upper, which are rather aspiring; branchlets also pendulous, and, together with the branches, more numerous and dense than those of *L.* a. péndula. The wood is so ponderous that it will scarcely swim in water.

♆ L. *a.* 2 *péndula.* *L.* péndula *Laws. Man.* p. 387.; *P*ìnus péndula *Ait. Hort. Kew.* ed. 1. iii. p. 369.; *P.* intermèdia *Du Roi Harbk.* ii. p. 115.; *P. L*àrix nìgra *Marsh. Arb. Amer.* p. 203.; *A*bies péndula *Poir. Dict.* p. 514.; Tamarack, *Amer.* — A tree of medium size, slender, and generally bending towards the top. Branches verticillate, few, remote, and pendulous; branchlets also thin, and more pendulous than the branches. Bark smooth, and very dark-coloured; that on the youngest twigs of a dark purplish colour, inclining to grey. Leaves like those of the common larch in shape, but rather longer, darker in colour, and arising from shorter and much darker-coloured buds or sheaths.

♆ L. *a.* 3 *prolìfera.* *L.* prolìfera *Malcolm.* — In this variety, the axis of the cones is prolonged in the form of a shoot; a kind of monstrosity or morphology which is found in all the varieties of *L.* americàna, and also, occasionally, in some species of *A*bies and *P*ícea.

Michaux describes the American larch as a tall slender tree, with a trunk

1973. *L. americàna.*

80 or 100 feet high, and only 2 or 3 feet in diameter. Its numerous branches, except near the summit, are horizontal or declining. The bark is smooth and shining on the trunk and larger branches, but rugged on the smaller branches. The leaves are flexible, and shorter than those of the European species. The cones are small and erect; green in spring, and generally brown when ripe, but sometimes they are found of a violet colour. The wood, Michaux says, is equal to that of the European larch, being exceedingly strong, and singularly durable. In Britain, it can only be considered as a curious or ornamental tree. Seeds are sometimes ripened in this country, and are also sometimes imported; in consequence of which, both varieties are not uncommon in the nurseries.

## Genus V.

### CE'DRUS *Barrel.* The Cedar. *Lin. Syst.* Monœ'cia Monadélphia.

*Identification.* Barrelier, Plantæ per Galliam, &c., observatæ, &c., Ic., 499.

*Synonymes.* Pinus *Lin.* in part; *A'bies Poir.* in part; Làrix *Tourn.* in part; Cèdre, *Fr.*; Ceder, *Ger.*; Cedro, *Ital.*

*Derivation.* Some suppose the word Cedrus to be derived from *Cedron*, a brook in Judea, on the banks of which the cedar of Lebanon was once plentiful: others from *kaiō*, I burn; from the wood of some of the kinds of cedar being burned as incense: and others, from the Arabic *kedroum*, or *kèdre*, power

*Gen. Char.* The same as in Làrix; but with the *carpels* separating from the axis, and the *leaves* evergreen. *Cones* erect, large, solitary. *Anthers* crowned by an elliptical scabrous crest. *Carpels* coriaceous, compressed, deciduous.

*Leaves* simple, in alternate fascicles, exstipulate, evergreen; linear. *Flowers* yellowish, powdery.—Trees majestic in form, and evergreen; natives of Asia and Africa, with large spreading branches. Extremely ornamental, and one species producing excellent timber.

♃ 1. *C.* Liba'ni *Barr.* The Cedar of Lebanon.

*Identification.* Barrel. Ic., 499.; Edw. Ornith., t. 188.

*Synonymes.* Pinus Cèdrus *Lin. Sp. Pl.* 1420.; *P.* foliis fasciculàtis, &c. *Du Roi Harbk.* ed. Pott. 2. p. 120.; Làrix Cèdrus *Mill Dict.* No. 3.; Làrix orientàlis *Tourn. Ins.* p. 586.; Cèdrus mâgna *Dod. Pempt.* 867.; *C.* conifera *Bauh. Pin.* p. 490.; *C.* phœnicea *Renealm. Sp.* p. 47.; Cèdrus *Bell. It.* p. 162.; *A'bies* Cèdrus *Poir. Dict. Encyc.* 6. p. 510.

*Engravings.* Du Ham. Arb., 1. t. 132.; Lamb. Pin., ed. 2., t. 51.; the plates of this tree in Arb. Brit., 1st edit, vol. viii.; and our *fig.* 1973.

*Spec. Char., &c.* Leaves tufted, perennial. Cones ovate, abrupt; their scales close-pressed. Crest of the anthers ovate, flat, erect. (*Smith.*) Cones ovate, from 3 in. to 5 in. long, and from 2 in. to 2½ in. broad. Seeds of an irregular triangular form; nearly ½ in. long, with a very broad membranaceous wing. Cotyledons 6. A large, spreading evergreen, tree. Syria, on Mount Lebanon; and the North of Africa, on Mount Atlas. Height 50 ft. to 80 ft. Introduced before 1683. Flowers yellow; May. Cones purplish brown, ripening in the autumn of the third year, and remaining on the tree for several years.

*Varieties.*

- C. *L.* 2 *fòliis argénteis.*—Leaves of a silvery hue both above and below. There are very large trees of this variety at Whitton and Pain's Hill, and a dwarf bushy one, remarkable for its silvery aspect, at the Countess of Shaftesbury's villa (formerly the residence of Thomson the poet), on the banks of the Thames at Richmond, of which there is a portrait in Arb. Brit., 1st. edit., vol. viii.
- C. *L.* 3 *nàna.*—Very dwarf. A plant at Hendon Rectory, Middlesex, 10 or 12 years old, is only from 2 ft. to 3 ft. high, making shoots from 2 in. to 3 in. in a year.

The leading shoot, in young trees, generally inclines to one side, but it becomes erect as the tree increases in height. The horizontal branches, or limbs, when the tree is exposed on every side, are very large in proportion to the trunk: they are disposed in distinct layers, or stages, and the distance to which they extend diminishes as they approach the top; thus forming a pyramidal head, broad in proportion to its height. The extremities of the lower branches, in such trees, generally rest on the ground, bent down by their own weight; but they do not root into it. The summit, in young trees, is spiry; but in old trees it becomes broad and flattened. When the cedar of Lebanon is drawn up among other trees, it produces a clean straight trunk, differing only in appearance from that of the larch in the colour of its bark. The wood of the cedar is of a reddish white, light and spongy, easily worked, but very apt to shrink and warp, and by no means durable. The tree, as an ornamental object, is most magnificent; uniting the grand with the picturesque, in a manner not equalled by any other tree in Britain, either indigenous or introduced. On a lawn, where the soil is good, the situation sheltered, and the space ample, it forms a gigantic pyramid, and confers dignity on the park and mansion to which it belongs; and it makes an avenue of unrivalled grandeur, if the trees are so far apart as to allow their branches to extend on every side. If planted in masses, it is, like every other species of the pine and fir tribe, drawn up with a straight naked trunk, and scarcely differs in appearance from the larch, except in being evergreen. This is exemplified at Kenwood, at Claremont, and other places near London. On the other hand, where the cedar is planted in masses, and a distance of 50 or 60 feet allowed between each tree, nothing in the way of sylvan majesty can be more sublime than such a forest of living pyramids. This is exemplified around the cedar tower at Whitton, and on the cedar bank at Pepper Harrow. The cedar will grow in every soil and situation suitable for the larch. We are not certain that it will grow equally well with that tree at great elevations; though we have little doubt of it, provided it were planted in masses. In the neighbourhood of London, it has certainly attained the largest size in deep sandy soil, as at Syon, Whitton, and Pain's Hill; but the sand at these places is not poor; and at Whitton, where the tree has attained the greatest height and bulk, the

1974. *C. Libàni.*

roots are within reach of water. The cones, which, as already observed, are not ripe till the autumn of the third year, will keep five or six years after being taken from the tree, so that there is never any risk of getting seeds too old to vegetate, in purchasing the cones that are imported from the Levant. If cones produced in Britain are kept a year after being gathered, they may be opened with greater ease than when recently taken from the tree. To facilitate the operation of extracting the seeds, the cones may be steeped in water for a day or two, and afterwards split by driving a sharp conical iron spike through their axis. The scales being then opened with the hand, the seeds readily come out. The seeds ought to be committed to the soil immediately after being taken out of the cones; more especially if the latter have been steeped, because in that case the seeds have swelled, and might be injured, if left to shrink. If the seeds are sown in March or April, they will come up in a month or six weeks; and still sooner if they have been steeped. Like the other *A*biétinæ, they should be sown in light rich soil, and covered thinly. Sang recommends the covering to be ½ in. deep; and this depth may be diminished or increased, according to the lightness or heaviness of the soil. The seeds may be either sown in beds in the open garden, or in large flat pots or boxes; but the latter is the more convenient mode, as it admits of preserving the whole of the roots in transplanting. The plants rise 3 or 4 inches high the first year, with scarcely any taproots; but these increase afterwards, as the plants advance in size. At the end of the first year, the seedlings may be transplanted into nursery lines, or, what is more convenient, into small pots; and, in commercial nurseries, they should every year be shifted into pots a size larger, till they are sold. In private nurseries, where the plants are not likely to be sent to any distance, they may be planted in the free soil in nursery lines, like the pinaster and other of the more rare pines and firs; and, when they are removed to their final situation, their roots may be protected from the air, by immersing them in mud or puddle. In the nursery culture of the cedar, care must be taken not to injure the leading shoot, which is said not to be readily renewed when broken off. In general, it is advisable to tie the leader to a stake, till the plants are placed where they are finally to remain; after which they may be left to themselves. In their progress from young plants to full-grown trees they require very little pruning, and suffer severely when large branches are cut off.

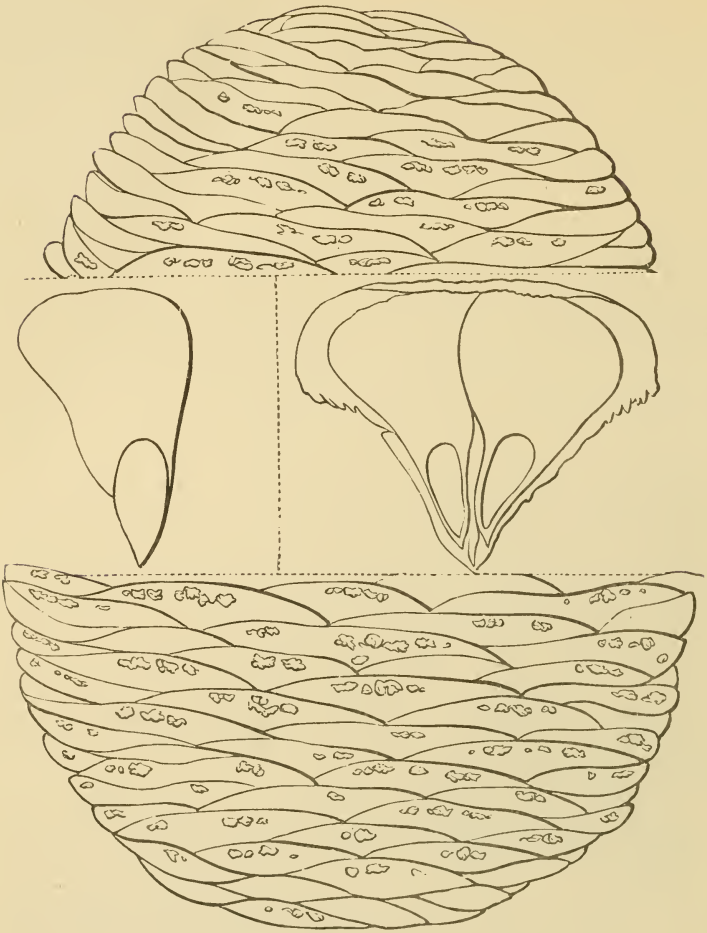
### ♀ 2. *C. Deoda'ra* Roxb. The Deodara, *or Indian*, Cedar.

*Identification.* Roxb. Fl. Ind. ined.; Laws. Man., p. 381.
*Synonymes.* *P*inus *Deodàra* Lamb. Pin. ed. 2. t. 52.; *A*'bies *Deodàra* Lindl. in Penn. Cyc.; Devadara, or Deodara, *Hindostanee;* the sacred Indian Fir.
*Engravings.* Lamb. Pin., ed. 2., t. 52.; our *fig.* 1977. to our usual scale; and *figs.* 1975. and 1976. of the natural size.

*Spec. Char., &c.* Leaves fascicled, evergreen, acute, triquetrous, rigid. Cones twin, oval, obtuse, erect; scales adpressed. (*Lamb.*) Cones from 4½ in. to 5 in. long; and from 3½ in. to 3¾ in. broad. Seed, with the wing, nearly 1½ in. long; scale about the same length, and 2 in. broad. A large evergreen tree. Nepal and Indo-Tataric mountains, at 10,000 or 12,000 feet above the level of the sea. Height 50 ft. to 100 ft., rarely 150 ft. Introduced in 1822, and apparently as hardy as the cedar of Lebanon, from which it is readily distinguished at a distance by its general aspect being comparatively whiter.

*Varieties.* Two varieties, or perhaps nearly allied species, called the Shinlik and Christa rooroo, are mentioned by Moorcroft as natives of the forests of Ladakh. (*Lindl.* in *Penn. Cyc.*)

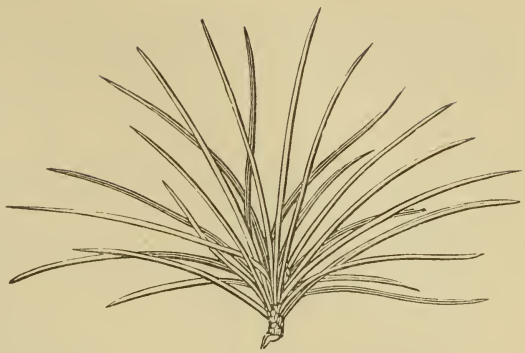
The branches are ample and spreading; ascending a little near the trunk of the tree, but drooping at the extremities. The wood is compact, of a yellowish white, and strongly impregnated with resin. The bark is greyish, and, on the young branches, covered with a glaucous bloom. The leaves are either solitary or tufted, and are very numerous; they are larger than those of *C.* Libàni, and of a bluish but dark green, covered with a light glaucous bloom.



1975. *C. Deodara.*

The male catkins are upright, without footstalks ; cylindrical somewhat club-shaped ; and yellowish, tinged with red. The cones are upright, generally in pairs, on short, thick, woody footstalks ; of nearly the same shape as those of the cedar of Lebanon, but broader and longer ; slightly tapering at the base, and somewhat more pointed at their summit. They are of a rich reddish brown, very resinous, and with the margins of the scales slightly marked with green ; about 4 in. in length, and from 1 in. to 2½ in. broad. The scales are nearly of the same size and shape as those of *C.* Libàni ; but they fall off when ripe, like those of the silver fir. The seed is light brown, and irregularly shaped, with a large bright brown wing. The rate of growth, in the climate of London, appears to be much the same as that of the cedar of Lebanon ; and it is equally hardy. The wood of the *Cèdrus Deodàra* possesses all the qualities attributed by the ancients to that of *C.* Libàni. It is very compact and resinous, and has a fine, fragrant, refreshing smell, like that felt when walking in pine groves towards evening or in moist weather ; and very

different from that of the cedar of Lebanon. The grain is remarkably fine and close, and is capable of receiving a very high polish. It is particularly valued for its durability; and is much used in the construction of Himalayan buildings, both public and private, and for bridges and boats. Strips of it are also employed for candles In England, the specimens of the tree are at present small; but the feathery lightness of its spreading branches, and the beautiful glaucous hue of its leaves, render it, even when young, one of the most ornamental of the coniferous trees; and all the travellers who have seen it full grown agree that it unites an extraordinary degree of majesty and grandeur with its beauty. The tree thrives in every part of Great Britain where it has been tried, even as far north as Aberdeen; where, as in many other places, it is found hardier than the cedar of Lebanon. It is readily propagated by seeds, which preserve their vitality when imported overland in the cones, but scarcely otherwise. It also grows freely by cuttings, and by grafting on the common cedar, and the plants appear as handsome and free-growing as those raised from seed. It has been inarched on the larch; but, the latter tree being deciduous, it may be doubtful whether plants so propagated will attain a large size, and be of great duration. It has been grafted, in the wedge manner, on the common cedar, in considerable numbers, by Mr. Barron, gardener to the Earl of Harrington, at Elvaston Castle. Mr. Barron has given a detailed account of his process, and of the success which attended it, in *Gard. Mag.*, vol. xiv. p. 80. The nursery culture of the deodara cedar, and the soil and situation in which it is to be finally planted, may be considered, in all respects, the same as those of the common cedar.



1976. *C. Deodàra.*

1977. *C. Deodàra.*

## Genus VI.

ARAUCA'RIA *Juss.* The Araucaria. *Lin. Syst.* Dioe'cia Monadélphia.

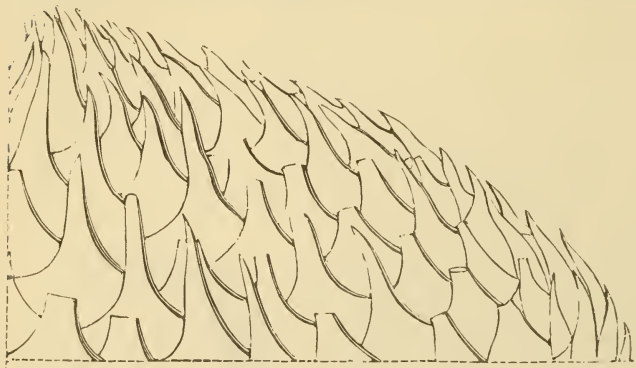
*Identification.* Juss. Gen. Plant.
*Synonymes.* Eutássa *Sal.*, Colymbèa *Sal.*, Dombèya Lamb., Cupréssus *Forst.*, the Southern Pine.
*Derivation.* From *Araucanos*, the name of the people in whose country Araucària imbricàta grows in Chili.

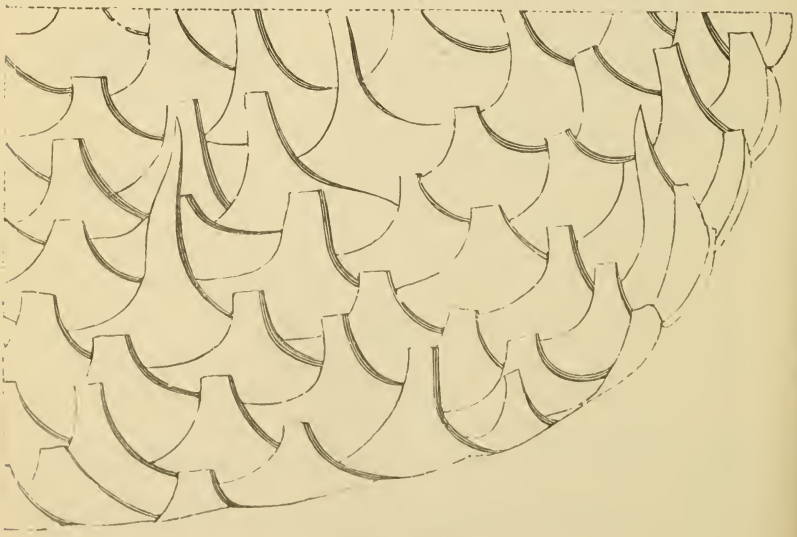
*Gen. Char.* *Male flower* with the pollen contained in from 10 to 20 cases, pendent from the apex of the scale. *Ovule* solitary, connate with the carpel or scale.

*Leaves* simple, alternate, exstipulate, evergreen; imbricate. — Trees of magnificent dimensions, and evergreen; natives of South America, Polynesia, and Australia; only one of which, the Araucària imbricàta, is hardy in the climate of Britain.

♀ 1. A. IMBRICA'TA *Pav.* The imbricate-*leaved* Araucaria, *or Chili Pine.*

*Identification.* Pav. Diss. in Mém. Acad. Reg. Med. Mat., 1. p. 197.
*Synonymes.* A. Dombèyi Rich. Mém. sur les Conif. p. 86.; Pinus Araucària *Mol. Sag. sulla Stor. Nat. del Chili*, p. 182.; Colymbèa quadrifària *Salisb.* in *Linn. Trans.* 8. p. 315.; Dombèya chilènsis *Lam. Encyc.*; Pino de Chili, *Span.*; Peghuen, *in the Andes;* Sir Joseph Banks's Pine.
*The Sexes.* There is a tree at Kew which bore female catkins in 1836; and a male plant at Boyton which blossomed in the same year.
*Engravings.* Lamb. Pin., ed. 2., t. 56. and 57.; Rich. Mém. sur les Conif., t. 20. and 21.; and our *figs.* 1978. to 1986. *Fig* 1979. is a cone or female catkin in a young state, from Lambert; *fig.* 1984. is a specimen of the female tree at Kew; *fig.* 1983. is a portion of the male tree with the full-grown catkin, from Lambert's *Monograph;* and *fig.* 1980. is the full-grown female cone; all to our usual

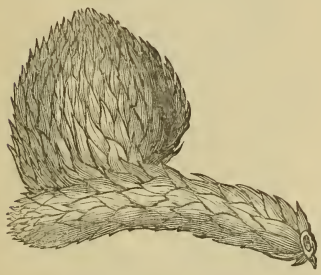




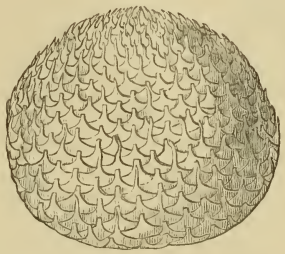
1978. A. imbricata.

scale, that is, a sixth part of the natural size. *Fig.* 1978. is a portion of a cone of the natural size. *Fig.* 1981. *a* is a seed with the scale and wing of the natural size, and *b* is the kernel; and *fig.* 1982 is a leaf of the natural size.

*Spec. Char., &c.* Leaves in eights, imbricated, ovate-lanceolate, with persistent mucros. (*Pav.*) An evergreen tree. Cordilleras, in Chili. Height 50 ft. to 100 ft., rarely 150 ft. Introduced in 1796, and flowering from September to November.

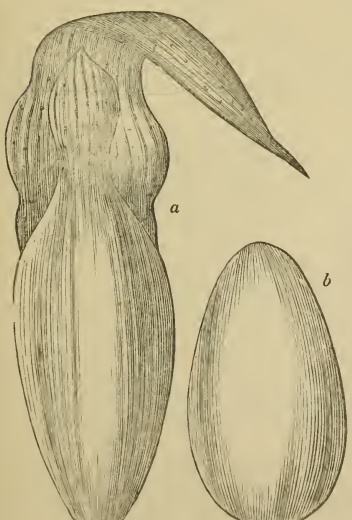


1979. A. imbricàta: fem catkin, young.

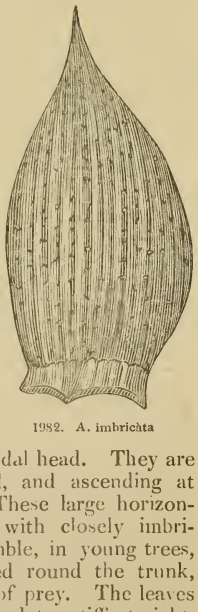


1980. A. imbricàta: fem. catkin, fullgrown.

A very remarkable tree; the female of which, according to Pavon, is about 150 ft. high, while the male is seldom more than 40 or 50 feet high. The trunk is quite straight, and without knots, with a strong arrow-like leading shoot, pushing upwards. It is covered with double bark, the inner part of which, in old trees, is 5 or 6 inches thick, fungous, tenacious, porous, and light; and from it, as from almost every other part of the tree, resin flows in great abundance; the outer bark is of nearly equal thickness, resembling cork cleft in different directions, and equally resinous with the inner bark. In young trees, the bark of the trunk is studded with leaves from the base of the tree upwards, which remain attached for 12 or 15 years. The branches are produced in whorls of 6, 7, and sometimes 8, in a whorl, the greater number being nearest the ground; and the branches diminish in length as they ascend higher up the tree; till, at the top, they terminate in a kind of pyramidal head. They are horizontal, inflexed, and ascending at the extremities. These large horizontal arms, clothed with closely imbricated leaves, resemble, in young trees, snakes partly coiled round the trunk, and stretching forth their long slender bodies in quest of prey. The leaves are sessile, somewhat thickened at the base, ovate-lanceolate, stiff, straight, somewhat keel-shaped below, and strongly mucronate at the apex; verticillate, with 7 or 8 in a whorl; imbricate, and closely encircling the branches; concave, rigid, glabrous, shining, marked with longitudinal lines, dotted on




1981. A. imbricàta.



1982. A. imbricàta

both sides; leathery, with a cartilaginous margin, and remaining attached to the tree for several years. The male and female catkins are on separate trees; the males are 6 or 7 in a cluster, pedunculate, terminal, yellow, and oval, with numerous scales; imbricated, long, and recurved at the points: the female catkins are oval, with numerous imbricated wedge-shaped scales, with narrowed oblong brittle points; and they are produced at the ends of the branches, where they look at first sight like an unnatural thickening of the leaves. The cones, when fully ripe, are globular, from 3 in. to 4 in. in diameter, and of a dark brown colour. The scales are deciduous, and easily detached. The seeds are 2 to each scale, wedge-shaped, and very large, being more than 1 in. long, with a thick hard shell surrounding an eatable kernel: wings short and obsolete. The male tree has its leaves somewhat differently shaped from those of the female tree, and very much resembling those of A. brasiliàna in shape, though of a different texture and colour. The wood is red where it has been affected by the forest fires; but otherwise it is white, and towards the centre of the stem bright yellow. It yields to none in hardness and solidity, and might prove valuable for many uses, if the places of growth of the tree were less inaccessible. Of the rate of growth of this tree in its native country very little is stated by travellers. It is probably slow, as appears to be the case with plants in the climate of London; though scarcely any of these have yet had full justice done to them. Young plants established in the open ground at Dropmore and Bayfordbury make shoots, occasionally, of above a foot in length. It may be remarked of the arancaria

1983. A imbricàta male.

1984. A. imbricàta: female.

1985. A. imbricàta: at Kew in 1837.

in Britain, that young plants sometimes remain a whole year without making any shoot whatever; and that, at other times, the same plants require two years to perfect one shoot, that is, the shoot continues slowly increasing in length from the midsummer of one year to that of the year following. The treatment of this tree, when raised from seeds, may be considered in all respects the same as that of the cedar; regard being had to the different size of the seeds, which will, of course, require a thicker covering. Abundance of seeds have lately been imported, from which many young plants have been raised, and extensively distributed. *Fig.* 1986. shows the manner in which the seeds germinate; *a*, the first appearance of the radicle; *b*, the plumular, or young, shoot, in an advanced state.

1986. A. imbricàta.

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A. brasiliàna *Rich.*, A. excélsa *Ait.*, and A. Cunninghàm*ii* Ait., are half-hardy species, which will be found described at length, accompanied by numerous figures, in our first edition, p. 1440. to p. 1445.

## GENUS VII.

CUNNINGHA'M*IA* R. Br. THE CUNNINGHAMIA. *Lin. Syst.* Monœ'cia Monadélphia.

*Synonymes.* Pinus *Lamb.*, Bèlis *Salisb.*
*Derivation.* Named, by Mr. Brown, in honour of *Mr. James Cunningham*, "an excellent observer in his time, by whom this plant was discovered; and in honour of *Mr. Allan Cunningham*, the very deserving botanist who accompanied Mr. Oxley in his first expedition into the interior of New South Wales, and Captain King in all his voyages of survey of the coast of New Holland." (*Bot. Mag.*, t. 2743.)

*Gen. Char.* *Male flowers* in grouped catkins. *Pollen* contained in 3 cases that depend from the scale. *Female* with 3 ovules. *Strobile* ovate.

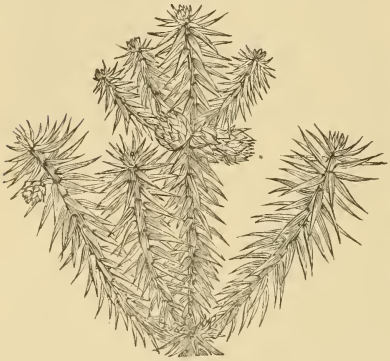
*Leaves* simple, alternate, exstipulate, evergreen; solitary, scattered in insertion, more or less 2-ranked in direction; flat, acuminate, and serrulate. — Only one species has been discovered, which is an evergreen moderate-sized tree, a native of China.

♀ 1. C. SINE'NSIS *Rich.* The Chinese Cunninghamia, *or broad-leaved Chinese Fir.*

*Identification.* Rich. Conif., p. 149. t. 18.; Lamb. Pin., ed 2., 2. t. 53.
*Synonymes.* Bèlis jaculifòlia *Salisb.* in *Lin. Trans.* 8. p. 316.; Pinus lanceolàta *Lamb. Mong* ed. 1. t. 34.; Cunninghàm*ia* lanceolàta *R. Br.*; Araucària lanceolàta *Hort.*

*Engravings.* Rich. Conif., t. 18.; Lamb. Monog., ed. 1., t. 34.; Lamb. Pin., ed. 2., t. 53.; our *fig.* 1987. to our usual scale; and *fig.* 1988. of the natural size.

*Spec. Char., &c.* Leaves sessile, deflexed, and spreading in every direction, 1½ in. long; lanceolate, much pointed, rigid, flat, quite entire, somewhat scabrous on the margin. Male catkins terminal, fascicled, cylindrical, scarcely 1 in. long. Cones about the size of a walnut, sessile, drooping, globose, smooth. Scales ovate-acuminate, coriaceous, sharply denticulated on the margin. Branches for the most part verticillate, spreading horizontally. (*Lamb.*) A middle-sized evergreen tree. China. Height 30 ft. to 40 ft. Introduced in 1804, and rather tender in British gardens.



1987. C. sinensis.

1988. C. sinénsis.

For many years this tree was kept in the green-house; but, in 1816, a plant was turned out into a sheltered part of the pleasure-ground at Claremont, where it has continued to live without protection; and, though injured more or less by severe winters, it was, in 1837, 18 ft. high, the diameter of the trunk 7 in., and of the head 16 ft., which height it had not exceeded in 1841, in consequence of the top having been frequently broken off by heavy snow. It is very readily propagated by cuttings; and there are some trees at Dropmore, raised in this manner, which have thrown up erect stems from the collar, which will doubtless form as handsome trees as seedlings.

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*Dámmara* orientàlis *Lamb.* (*fig.* 1989.), native of Amboyna, and *D.* austràlis *Lamb.* (*fig.* 1990.), native of New Zealand, are described and figured in our first edition, but they are too tender for the open garden.

1989. *D.* orientàlis.

1990. *D.* austràlis.

## Tribe II. *Cupre'ssinæ.*

The *Cupréssinæ* differ from the *Abiétinæ* in being, for the greater part, shrubs or low trees, instead of lofty trees. They are all evergreen, with the exception of one species of Taxòdium (T. dístichum, the deciduous cypress); and none of them have the branches disposed in whorls, as is the case with all the pines and firs without exception. The greater part of the species are natives of warm climates, and comparatively few of them are perfectly hardy in British gardens. One only, the common juniper, is a native of Britain; but between 30 and 40 foreign species and varieties endure the open air in England; and 8 or 10 of these (exclusive of Taxòdium), which have been not less than 30 or 40 years in the country, and which have had time to display their shapes, form very handsome or remarkable evergreen low trees or tall shrubs; such as the red cedar, the white cedar, the eastern and western arbor vitæ, the Phœnician and tall juniper, the cedar of Goa, the common and spreading cypress, &c. The greater number of the species, or alleged species, have, however, been but a short time in Britain; and are only to be seen as very young plants in the nurseries, or in very choice collections. These lately introduced kinds are so imperfectly known among cultivators, that little dependence is to be placed on the names which are applied to them; and therefore all that we can recommend is, that they should be as extensively introduced into collections as possible, in order that they may grow up to some size, and be examined in various situations by different botanists. It may be observed of all the species of *Cupréssinæ*, that it is not easy to describe by words, and scarcely practicable to illustrate by figures without the fruit, many of the different species of this family; nevertheless, to a practised eye, it is easy to distinguish the three leading genera, viz. *Thùja*, *Cupréssus*, and *Juníperus*, by a portion of the branch, without either flowers or fruit. The flattened, two-edged, scaly, imbricated shoots of all the thujas, including Cállitris (which may, if the reader chooses, be considered a sub-genus), are two-edged, whether the specimen be young or old; those of *Cupréssus* are scaly and imbricated, but angular or roundish, and never two-edged; and those of *Juníperus*, in the young state of the plants, have distinct acerose leaves, generally glaucous above, and often in threes joined at the base. All the kinds may be propagated by layers and cuttings; and the more common species ripen seeds in Britain in abundance. The seeds, which generally lie a year in the ground, may be sown in spring; and the young plants may be treated in all respects like those of the pine and fir tribe. When the seeds are sown in autumn, immediately after being gathered, they sometimes come up the following year Cuttings should be made in autumn, of the wood of the same year, with a small portion of the preceding year's wood attached; and they should be planted in sand, or in a very sandy loam, in a shady border, and covered with hand-glasses. Cuttings put in in September will form callosities at their lower extremities the same autumn, and should be protected by mats during severe frosts in winter: the following autumn they will be ready to transplant. Layers may be made either in autumn or spring. The genera have been thus arranged: —

*Thu'ja.* Catkins terminal, solitary. Pollen in 4 cases. Ovules 2. Leaves scale-like, imbricate.

Ca'llitris. Catkins terminal, solitary. Pollen in 2 to 5 cases. Ovules 3 or more. Leaves scale-like, opposite or whorled.

*Cupre'ssus.* Catkins solitary. Pollen in 4 cases. Ovules 8 or more. Leaves imbricate.

Taxo'dium. Catkins disposed in compound spikes, female ones 2 or 3 to-

gether. Pollen in 5 cases. Ovules 2. Leaves linear, in 2 ranks, deciduous in the only species yet introduced.

JUNI'PERUS. Male catkins terminal, female ones axillary, few. Pollen in 3 to 6 cases. Ovule one. Fruit pulpy. Leaves opposite or ternate, rigid.

## GENUS VIII.

### THU'JA *L.* THE ARBOR VITÆ. *Lin. Syst.* Monœ'cia Monadélphia

*Identification.* Lin. Gen., 1078.; Juss., 413.; Lamb. Pin., ed. 2., 2.
*Synonymes.* Thuya, or Arbre de Vie. *Fr.*; Lebensbaum, *Ger.*; Tuja, *Ital.*
*Derivation.* From *thyon*, sacrifice; in consequence of the resin of the Eastern variety being used instead of incense in sacrifices. Why it was called Arbor Vitæ is uncertain. Parkinson says the American species was presented to Francis I. under this name, and that it has been continued ever since, though for what reason he knows not. It was called the Arbor Vitæ by Clusius. Royle mentions that, in the East, the cypress is called the tree of life; and that its berries, &c., are considered a cure for all diseases.

*Gen. Char.* *Male flowers* in a terminal solitary catkin. *Pollen* of each flower included in 4 cases, that are attached to the inner face of the scale, towards its base. — *Female flower* in terminal catkins. *Ovary* connate with the bractea; the two conjoined may be termed a receptacle. *Ovules* 2 to each receptacle. *Receptacles* semi-peltate, imbricated, smooth, or, in some, having a recurved beak near the tip. *Seeds* inconspicuously winged, or not winged. *Cotyledons* 2. *Branchlets* compressed.

*Leaves* simple, alternate or opposite, exstipulate, evergreen; 2-rowed, scale-like, closely imbricated, compressed. *Flowers* yellowish.—Trees narrow, pyramidal, and evergreen; or large fastigiate shrubs; natives of Asia, Africa, and North America, and for the most part hardy in British gardens. The species have been divided by Professor Don into the following sections:—

i. *Thùjæ vèræ.* Cones oblong-compressed; scales consisting of a definite number (4 or 6), coriaceous, smooth, with one tubercle under the apex; two exterior ones shortened, boat-shaped. Seeds compressed, winged. To this belong *T.* occidentàlis *L.*, *T.* plicàta *Donn*, and *T.* chilénsis *D. Don.* In *T.* occidentàlis the seeds are flattened, winged all round, emarginate at the apex.

ii. *Biòta.* Cones roundish, squarrose; scales indefinite in number, peltate, woody. Seeds bellying, crustaceous, without wings. To this belongs *T.* orientàlis *L.*

iii. *Cyparíssa.* Cones roundish; scales indefinite in number, peltate, woody. Seeds winged at the apex. To this belong *T.* cupressoïdes *L.*, *T.* pénsilis *D. Don*, and *T.* péndula *D. Don.*

### § i. *Thùjæ veræ.*

♀ 1. *T.* OCCIDENTA'LIS *L.* The Western, *or American*, Arbor Vitæ.

*Identification.* Hort. Cliff., 449.; Pursh Fl. Amer. Sept., 2. p. 646.; Michx. N. Amer. Syl., 3. p. 226.
*Synonymes.* Thùja Theophrásti Bauh. Pin. 488.; Arbor Vitæ *Clus. Hist.* 1. p. 36.; white Cedar *Amer.*; Cèdre américain, Cèdre blanc, Arbre de Vie, *Fr.*; gemeiner Lebensbaum, *Ger.*; Albero de Vita, *Ital.*
*Engravings.* Michx. Arb., 3. t. 29.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1991.

*Spec. Char., &c.* Branchlets 2-edged. Leaves imbricated in 4 rows, ovate-rhomboid, adpressed, naked, tuberculated. Cones obovate; interior scales truncate, gibbous beneath the apex. (*Willd.*) A moderate-sized evergreen tree, or large shrub. Canada. Height 40 ft. to 50 ft. In cultivation in England since 1596. Flowering in May, and ripening its cones in the following autumn.

*Variety.*

♀ T. o. 2 *variegàta* Marsh. p. 243. *T.* o. fòliis variegàtis *Lodd. Cat.* 1836.—Leaves variegated.

The frondose-like foliage is numerously ramified, and flattened, or spread out laterally. The leaves are small, opposite, imbricated scales: when bruised, they diffuse a strong aromatic odour. The sexes are separate upon the same tree. The male catkins are in the form of small cones, which, when ripe, are yellowish, about 4 lines in length, and composed of oblong scales, which open throughout their whole length for the escape of several minute seeds, each of

1991. *T.* occidentàlis.

which is surmounted by a short wing. Compared with the Oriental, or Chinese, arbor vitæ, the American species is a loose irregular-headed tree, with the branches much more horizontal than in that species. The rate of growth, in the climate of London, is from 6 in. to 1 ft. in a year. In ten years, in favourable soils, it will attain the height of 10 or 12 feet; and in 30 or 40 years, in moist sheltered situations, drawn up by other trees, it will attain the height of 30 or 40 feet. The most common use of this tree in America is for rural fences, for which it is highly esteemed. The posts last 35 or 40 years, and the rails 60 years; or three or four times as long as those of any other species. The posts remain undecayed twice as long in argillaceous as in sandy soils. In Britain, the American arbor vitæ can only be considered as an ornamental shrub or low tree; thriving well in any soil, even in the most exposed situations, but attaining its largest size in low, sheltered, and moist places. It grows much faster than the oriental arbor vitæ, bears the knife and the shears, and is frequently employed to form hedges for shelter in gardens and nursery grounds. Readily propagated by seeds, which are procured in abundance from America or gathered from British trees, or by cuttings.

♀ ✱ 2. *T.* (o.) PLICA'TA *Donn.* The plicate, *or Nee's*, Arbor Vitæ.

*Identification.* Donn Hort. Cantab., 6. p. 249.; Lamb. Pin., ed. 2., 2. No. 61.
*Engraving.* Our *fig.* 2108. in p. 1110.

*Spec. Char., &c.* Branchlets compressed, spreading. Leaves rhomboid-ovate, acute, adpressed, imbricated in 4 rows, naked, tubercled in the middle. Cones oblong, nodding. Seeds obcordate. (*Lamb. Pin.*) A tree resembling the preceding species, but smaller. Mexico, and the western shores of

North America, at Nootka Sound. Height 20 ft. to 30 ft. Introduced in 1796, and frequent in collections.

A very branchy, spreading, light green tree. Branches crowded, covered with a reddish brown bark ; branchlets dense, often divided, pectinate compressed.

♀ 3. *T.* CHILE'NSIS *Lamb.* The Chili Arbor Vitæ.

*Identification.* Lamb. Pin., ed. 2., 2. p. 128., No. 62.
*Synonyme.* Cupréssus thyoìdes *Pavon MSS.*
*Engraving.* Our *fig.* 2110. in p. 1110.

*Spec. Char., &c.* Branchlets jointed, spreading, compressed. Leaves ovate-oblong, obtuse, somewhat 3-angled, imbricated in 4 rows, adpressed, naked, furrowed on both sides. Cones oval-oblong ; scales 4, compressed, elliptic, obtuse. Seeds winged at the apex, entire. (*Lamb.*) A beautiful dark green spreading tree. Chili, on the Andes. Height 30 ft. to 40 ft. Not yet introduced.

## § ii. *Biòta.*

♀ 4. *T.* ORIENTA'LIS *L.* The Oriental, *or Chinese*, Arbor Vitæ.

*Identification.* Lin. Sp., 1422. ; N. Du Ham., 3. p. 11.
*Engravings.* Dend. Brit., t, 149. ; and our *fig.* 1992.

*Spec. Char., &c.* Branchlets 2-edged. Leaves imbricated in 4 rows, ovate-rhomboid, adpressed, furrowed along the middle. Cones elliptic ; interior scales blunt, mucronate beneath the apex. (*Willd.*) A low evergreen tree, or fastigiate shrub. China and Siberia, in rocky situations ; and also on the mountains of Japan. Height 18 ft. to 20 ft. Introduced in 1752. Flowering in May, and ripening its brown cones in the following autumn.

*Varieties.*

♀ T. *o.* 2 *strícta* Hort. *T.* pyramidàlis *Baum. Cat.* ed. 1837 ; and the plate of this tree in *Arb. Brit.*, 1st ed. vol. viii.—More fastigiate than the species in its habit of growth.

♂ T. *o.* 3 *tatárica.* *T.* tatárica *Lodd. Cat.* ed. 1836 ; *T.* Wareàna Booth Cat. 1839.—Leaves, and the entire plant, rather smaller than in the species.

1992. *T.* orientàlis.

A low tree or large shrub ; distinguishable, at first sight, from the American

arbor vitæ, by its more dense habit of growth, by its branches being chiefly turned upwards, and by its leaves or scales being smaller, closer together, and of a lighter green. It is a more compact-growing and handsomer species than the American arbor vitæ, and quite hardy in the climate of London, where, in fine seasons, it ripens seeds. These are generally sown in pots immediately after they are gathered in autumn, in which case the plants come up the following summer; but, if the seeds are not sown till spring, they frequently do not come up for a year. Layers generally require two years to root sufficiently; and cuttings are rather more difficult to strike than those of *T.* occidentàlis. In a young state, the plants are somewhat tender; but they become quite hardy when old, even in the climate of Edinburgh.

## § iii. *Cyparíssa.*

*T.* cupressoïdes *L.* a native of the Cape of Good Hope, and *T.* pénsilis *Lamb.*, a native of China, exemplify this section, and are described at length in our first edition, but they are too tender for the open garden.

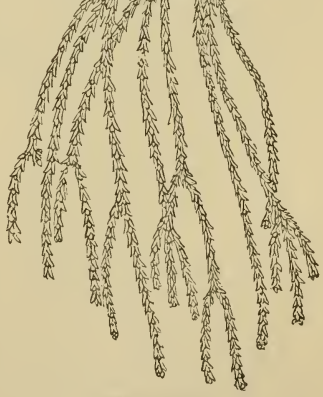
### ♀ 5. *T.* PE´NDULA *Lamb.* The pendulous, *or weeping*, Arbor Vitæ.

*Identification.* Lamb. Pin., ed. 2., 2. t. 67.
*Synonymes.* ? *T.* filifórmis *Lodd.*; ? Juníperus flagellifórmis *Hort.* (See Nos. 4. and 5. in p. 1076.)
*Engravings.* Lamb. Pin., ed. 2., 2. t. 67.; our *fig.* 1994. to our usual scale; and *fig.* 1993. of the natural size.

*Spec. Char., &c.* Leaves opposite and decussating, spreading, lanceolate, mucronulate, keeled, somewhat distant. Cones globose. Scales convex, smooth. Branches filiform, pendulous. (*Lamb.*) Branches very long, hanging down in the most graceful manner; light green. Cones globose, about the size of a wild cherry. 6-valved; valves roundish, very thick, fungous, externally convex, smooth. A low evergreen tree. Chinese Tartary. Height ?. Introduced in 1800, or probably before.

Only two large plants are known to be in Britain, one in the Chelsea Botanic Garden, and the other in the arboretum at Kew; from both of which cuttings have

1993. *T.* péndula.



1994. *T.* péndula.

been struck in 1837 and 1838. A very remarkable and very desirable species; quite hardy, and not very difficult to propagate.

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*T.* filifórmis *Lodd.* (probably *T.* péndula *Lamb.*), of which there are young plants in the collection at Hackney, is noticed in our first edition; and *T.* dolabràta *L.*, a large lofty tree, a native of Japan, is described at length, but not yet introduced.

## Genus IX.

**CA'LLITRIS** *Vent.* The Callitris. *Lin. Syst.* Monœ'cia Monadélphia.

*Identification.* Vent. Dec. Nov. Gen.; R. Brown in Litt.; Richd. Mém. sur les Conifères, p. 141.
*Synonymes.* Thùja, part of, *Lin.*; Fresnèlia Mirbel Mém Mus.

*Gen. Char.* *Male flowers* in terminal solitary catkins. *Pollen* of each flower contained in 2—5 cases, attached to the lower part of the scale, which is peltate. — *Female flowers* in terminal catkins, of 4—6 ovaries; or else receptacles, each spreading at the tip, and disposed upon so short an axis as to seem, in the state of fruit, the valves of a regular pericarp, at which time each has a mucro near the tip. *Ovules* 3 or many to each ovary, or receptacle. *Seed* winged. (*G. Don.*)

*Leaves* simple, opposite or whorled, exstipulate, evergreen; linear, scale-shaped, situated under the joints of the branches. *Flowers* yellowish. —Trees evergreen, low, or shrubs, with jointed branches; natives of Africa, with the habit of *C*upréssus or *T*hùja.

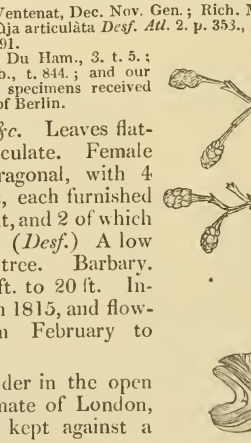
This genus was established from the *T*hùja articulàta of Desfontaines. It differs from the genus *T*hùja in having the scales of the female catkins constantly from 4 to 6, all opening like the valves of a regular pericarp; and in having, at the base of each of these scales, a number of seeds, winged on the margin, whereas in *T*hùja they are wanting, or inconspicuous.

### ♀ 1. C. quadriva'lvis *Vent.* The four-valved Callitris.

*Identification.* Ventenat, Dec. Nov. Gen.; Rich. Mém. sur les Conifères, p. 46.
*Synonymes.* Thùja articulàta *Desf. Atl.* 2. p. 353., *Arb. et Arbriss.* 2. p. 576.; *C*upréssus articulàta *Pin. Wob.* p. 191.
*Engravings.* N. Du Ham., 3. t. 5.; Lodd. Bot Cab., t. 844.; and our *fig.* 1995. from specimens received from M. Otto of Berlin.

*Spec. Char., &c.* Leaves flattened, articulate. Female catkin tetragonal, with 4 oval valves, each furnished with a point, and 2 of which bear seeds. (*Desf.*) A low evergreen tree. Barbary. Height 15 ft. to 20 ft. Introduced in 1815, and flowering from February to May.

Rather tender in the open air in the climate of London, but may be kept against a wall.



1995. C. quadrivàlvis.

♀ *C. Fothergílli.* ? *C*upréssus Fothergílli.—There are young plants of this name at Elvaston Castle, and in some of the nurseries, which in general appearance resemble the common evergreen cypress.

♀ *C. tríquetra.* *C*upréssus tríquetra *Lodd. Cat.* ed. 1836.—A native of the Cape of Good Hope, introduced in 1820. There are plants at Messrs. Loddiges's, and also at Elvaston Castle, where it has stood out three years, and appears quite hardy.

♀ *C. cupressifórmis* Vent., Lond. Hort. Brit. p. 490. — A native of New Holland, introduced in 1826. There are small plants of it in various nurseries.

♀ *C. macrostàchya* Hort.—There is a plant at Elvaston Castle.

## Genus X.

**CUPRE'SSUS** *L.* The Cypress. *Lin. Syst.* Monœ'cia Monadélphia.

*Identification.* Lin. Gen., No. 1079.; Juss. 413.
*Synonymes.* Cyprès, *Fr.*; Cypresse, *Ger.*; Cipresso, *Ital.*; Ciproste, *Port.*; Cypros, *Hungarian.*
*Derivation.* According to some, from *kuō*, to produce, and *parisos*, nearly resembling; in allusion to the regularity of the branches; or from *Cyparissus*, a beautiful youth of the Island of Ceos, who was changed into a cypress; or, according to others, from the Isle of *Cyprus*, where one species of the tree was found in abundance.

*Gen. Char.* *Male flower* in terminal solitary catkins. *Pollen* of each flower contained in 4 cases, attached to the scale on the inner face at the lower edge. *Scales* peltate. — *Female flowers* with the ovaries connate with the bractea, and constituting a receptacle. *Ovules* to each receptacle 8 or more. *Strobile* globose. *Receptacles*, as included in the strobile, peltate, having an obscure tubercle at the tip; disposed collaterally, not imbricately. *Seeds* compressed, angular; affixed to the narrow basal part of the receptacle. *Cotyledons* 2.

*Leaves* simple, alternate, exstipulate, evergreen; adpressedly imbricated, linear. *Flowers* yellowish.—Evergreen trees, or large shrubs; natives of Europe, Asia, and North America; remarkable for the fine grain and durability of their wood; propagated by seeds, which require the same soil and treatment as the *A*biétinæ.

### ♀ 1. *C.* sempervi'rens *L.* The *common, or* evergreen, Cypress.

*Identification.* Hort. Cliff., 449.; N. Du Ham., 3. p. 2.; Lam. Dict., 1.
*Synonymes.* *C.* pyramidàlis *Hort.*; ? *C.* fastigiàta *Hort.* and *Pin. Wob.* p. 186.; Cyprès pyramidal, Cyprès ordinaire, *Fr.*; gemeine Cypressenbaum, *Ger.*; the Italian Cypress.
*Engravings.* Dend. Brit., t. 155.; N. Du Ham., 3. t. 1. 127; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1996.

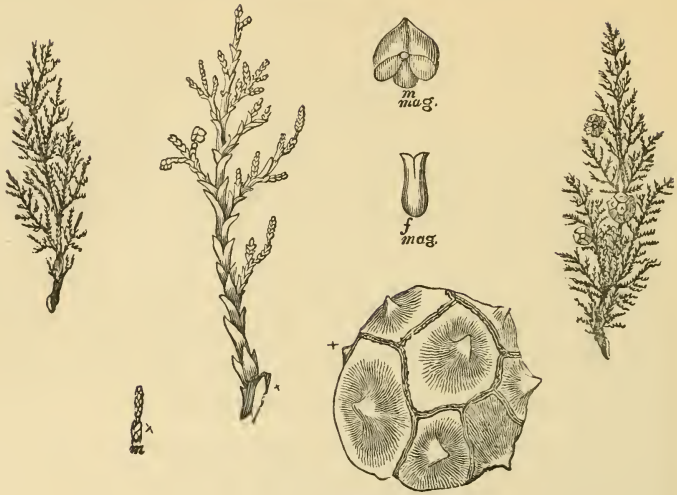
*Spec. Char., &c.* Branchlets quadrangular. Leaves imbricated in 4 rows, obtuse, adpressed, convex. Cones globose; scales mutic. Branches straight. (*Willd.*) A fastigiate evergreen tree. South of Europe, Greece, Turkey, Persia, and Asia Minor. Height, in its native country, 50 ft. to 60 ft.; in the climate of London, 30 ft. to 40 ft., rarely 50 ft. Introduced before 1548. Flowering in April and May, and ripening its dark brown cones in the following March or April.

*Varieties.*

♀ C. *s.* 1 *stricta* Mill. Dict. Cyprès mâle, *Fr.* — Branches upright, and closely pressed towards the trunk. It is the most common form of the species. (See the plate of *C.* sempervìrens in *Arb. Brit.*, 1st edit., vol. viii.)

♀ C. *s.* 2 *horizontàlis* Mill. Dict. *C.* horizontàlis *N. Du Ham.* 3. p. 6.; *C.* expánsa *Hort. Par.*; Cipresso femino *Ital.* — Branches spreading. (See the plate of this tree in *Arb. Brit.*, 1st edit., vol. viii.) There is an old tree of this variety in the Chelsea Botanic Garden, which by some is considered a species; and in the *Gard. Mag.* for 1839, p. 696., an engraving is given of the Cypress of Mistra, which appears to be of this variety. The latter, when measured by the Earl of Aberdeen in 1803, had a trunk 26 ft. in circumference at 4 ft. from the ground, and appeared to be 150 ft. high.

The cone of the cypress is composed of large, angular, corky scales, slightly convex on the outside, streaked in rays, and mucronate in the centre; becoming woody and separating when ripe; on the inside, ending in a thick angular peduncle, to the extremity of which adhere 4 little nuts, which are bony, obovate, compressed, or irregularly angular, and covered with a thin membranaceous skin of a dun colour. The seed is of a bay colour, and of a linear-oblong shape. The wood is hard, fragrant, and of a remarkably fine




1996. *C. sempervirens.*

close grain, very durable, and of a beautiful reddish hue, which Pliny says it never loses. The rate of growth, in the climate of London, will average, for the first 8 or 10 years, from 1 ft. to 1 ft. 6 in. a year; after which the tree grows more slowly; and, when it has attained its full size, and is between 30 ft. and 40 ft. high, it will live many years without any perceptible increase in dimensions. Any common garden soil suits the cypress; but it attains its largest size in such soils as are rather dry and deep, and in situations sheltered rather than exposed. It may be propagated either by cuttings or seeds; the former being put in in autumn, and treated like those of *T*hùja. The cones, which appear to be ripe in autumn, are not perfectly so, but require to hang on the trees till the following March or April. They may then be gathered, and placed in a warm room, or in a box or basket, and set in a dry stove. In a few days the scales will open, when the cones may be thrashed and the seeds collected: they may be immediately afterwards sown, and treated like those of the *A*biétinæ. In England, it is common to sow the seeds in flat pans or in boxes; because, as they are somewhat tender when they first come up, they admit of being more readily protected by being carried to a pit. Unlike the seeds of the genus *T*hùja, which commonly lie in the ground a year, those of the cypress come up in three or four weeks. They grow to the height of 3 or 4 inches the first season, and may be transplanted into pots, and kept in a pit through the winter. At the end of the second autumn, they may be planted where they are finally to remain; but, if it be thought necessary, they may be kept three or four years in pots; shifting them frequently, or allowing them to remain in the pot unshifted, according as the object may be to produce large plants, or to concentrate the roots in a small ball, so as to occupy less space in sending the trees to a distance. When the cypress is planted where it is finally to remain, and the situation and soil are suitable, it may be said to require no farther attention during the whole of its existence. It always grows erect, so that no care is requisite to train up a leading shoot; and, as its branches occupy little space, it seldom or never requires pruning.

♃ 2. *C.* THYÒIDES *L.* The Thuja-like Cypress, *or White Cedar.*

*Identification.* Willd. Sp. Pl., 4. p. 512.; Michx. N. Amer. Syl. 3. p. 207.; Pursh Sept., 2. 646.; N. Du Ham., 3. p. 6.

*Synonymes.* *T*hùja sphæröidàlis *Rich. Mém. sur les Conif.* p. 45.; Cyprès faux Thuja, *Fr.*

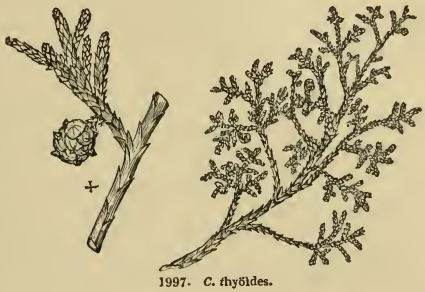
*Engravings.* N. Du Ham., 3. t. 2.; N. Amer. Syl., 3. t. 152.; Wats. Dend. Brit., t. 156.; and our *fig.* 1997.

*Spec. Char., &c.* Branchlets compressed. Leaves imbricated in 4 rows, ovate, tuberculate at the base. (*Willd.*) An evergreen tree; in England a shrub. New England to Carolina, in deep swamps. Height, in the southern states of America, 70 ft. to 80 ft.; in the climate of London, 10 ft. to 15 ft., rarely 30 ft. Introduced in 1736. Flowering in April and May, and ripening its cones about the same time in the following year.

*Varieties.*

♀ C. t. 2 *fŏliis variegàtis.* — Leaves variegated, or blotched with white.
♀ C. t. 3 *nàna* Hort. — Habit dwarf. Exeter Nursery.

The white cedar, in the climate of London, is of slow growth, seldom exceeding the height of 4 or 5 feet in 10 or 12 years, and but rarely found above that height. Cones are sometimes imported; and the seeds may be sown early in spring, and treated in all respects like those of *C*upréssus sempervìrens: it may also be propagated by cuttings; and, in the London nurseries, it is sometimes raised by layers.



1997. *C.* thyŏïdes.

♀ 3. *C.* LUSITA'NICA *Tourn.* The *Cedar of Goa, or* Portuguese Cypress.

*Identification.* Tourn., 587.; Du Ham. Arb., 1. p. 198.; Lamb. Pin, ed 2., 1. t. 65.
*Synonymes.* *C.* glaúca *Brot. Fl. Lus.* 1. p. 216.; *C.* péndula *L'Hérit Stirp. Nov.* p. 15.; Cedar of Bussaco. *C.* péndula *Thunb.*, *Lamb. Pin.* ed. 2. 2. t. 66., is supposed to be a different plant.
*Engravings.* Lamb. Pin., t. 65.; N. Du Ham., 3. t. 3.; the plate of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 1998.

1998. *C.* lusitánica.

*Spec. Char., &c.* Branches flexuose, spreading; branchlets quadrangular.

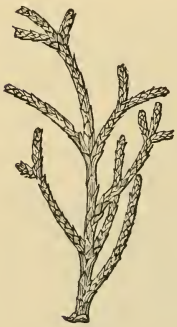
Leaves imbricated in 4 rows, acute, keeled, glaucous, adpressed. (*Lamb. Pin.*) A branchy evergreen tree; in England a shrub. Goa, in the East Indies, and for many years cultivated in Portugal. Height 50 ft.; in England, 15 ft. to 30 ft. Introduced in 1683. Flowering in April and May, and ripening its cones in the following spring.

This species, in the climate of London, attains the height of 10 or 12 feet in twelve years, and forms a remarkably handsome low tree, with spreading branches, somewhat pendulous, and covered with fine glaucous foliage. In the winter of 1837–8, however, it was every where killed to the ground. The tree is abundant at Bussaco, near Coimbra, in Portugal, whence cones might be imported, and thus so fine a tree rendered frequent in collections. Its seeds may be treated like those of the white cedar; or it may be propagated by cuttings, as in *T*hùja.

### ♀ 4. *C.* TORULO'SA *Lamb.* The *Bhotan, or* twisted, Cypress.

*Identification.* Lamb. Pin., ed. 2., 2. No. 59.; D. Don in Prodromus Nepalensis, p. 55.
*Engravings.* Our *figs.* 1999, to 2001. of the natural size, from specimens taken from the plant in the Hort. Soc. Garden, and showing the very different appearance that the shoots assume on the same plant, and that even a young one.

*Spec. Char., &c.* Leaves ovate-obtuse, imbricated in 4 rows. Galbulus globose, pedicellate. Scales bossed. Branchlets round, knotted, divaricate, crowded, spreading. (*Lamb.*) A beautiful, pyramidal, much-branched, evergreen tree. Nepal. on the Bhotan Alps, at 1500 ft. above the sea. Height 30 ft. Introduced in 1824. Flowering in April.


1999.

*C.* torulòsa. 2000.

2001.

Branches crowded, ascending; branchlets much crowded, round, divaricate, spreading, knotted, 2 in. to 6 in. long, very closely imbricated with leaves. Leaves small, ovate-obtuse, convex, smooth, imbricated in 4 rows, adpressed, green; adult ones persistent, and falling off with the bark. Only young male catkins seen. It appears tolerably hardy, and is remarkably handsome; and there are now abundance of plants in the nurseries.

### ♀ 5. *C.* PE'NDULA *Thunb.* The weeping Cypress.

*Identification.* Thunb. Fl. Japon., p. 265.; Willd. Sp. Pl., 4. p. 512.; Staunt. Embass., 2. p. 525.
*Synonyme.* Fi-moro, *Kæmpf. Amœn.* p. 883.
*Engravings.* Lamb. Pin., ed. 2., t. 66. Staunt. Embass., t. 41.; our *fig.* 2003. to our usual scale; *fig.* 2004. of the natural size; and *fig.* 2002. showing parts of the shoots magnified.

*Spec. Char., &c.* Branchlets 2-edged, leafy; the oldest very long, pendulous; the younger short, alternate, 2-rowed, spreading. An evergreen tree. China, said to have been introduced in 1808, but respecting which we know nothing with certainty. The pendulous cypress, or *T*hùja, at Chelsea and in the Kew arboretum, may possibly be the same as Thunberg's plant.

2002. *C.* péndula.

2003. *C. péndula.*

2004. *C. péndula.*

*Other Kinds of Cupréssus, some of which have been introduced, but of which little is known.*

C. *horizontàlis* Audibert.—This plant has been already alluded to (p. 1073.) as being considered by some to be the same as the spreading variety of *C.* sempervìrens ; and by others as a distinct species.

C. *thurífera* H. B. et Kunth, Linnæa, vol. xii. p. 493.—A tree from 50 ft. to 60 ft. high, with leaves ovate-lanceolate, acuminate-pointed, scarcely a line in length ; those on the young shoots about $\frac{1}{3}$ of a line long. Mexico, at the height of 5000 ft. Introduced in 1838. Hort. Soc.

C. *Tournefórtii Audibert.*—The plant bearing this name in the Horticultural Society's Garden, received from Audibert in 1834, is 2 ft. high.

C. *bacciformis* Willd.—A hardy tree, 20 ft. high. Introduced in 1818.

C. *austràlis* Pers.—A shrub with slender branches, a native of New Holland, and rather tender.

C. *sabinòides* H. B. et Kunth. — A very doubtful species.

C. *Coultèrii Pin. Wob.* p. 190.—Mexico. Raised from seeds in the Glasnevin Botanic Garden in 1837. ? *C.* thurífera *H. B. et Kunth.*

C. *fastigiàta* Hort., Pin. Wob. p. 186., Gard. Mag. 1839 p. 271. Juníperus fastigiàta *Hort.*—Said to be distinguished from *C.* sempervìrens by its "very blue glaucous leaves"; but apparently nothing but *C.* sempervìrens (of which it is the common name in many parts of the Continent), as indicated under that species.

## Genus XI.

TAXO'DIUM *Rich.* The Taxodium, *or* Deciduous Cypress. *Lin. Syst.* Monœ'cia Monadélphia.

*Identification.* Rich. Conif., p. 143. ; Lamb. Pin., ed. 2., 2.
*Synonymes.* Cupréssus *L.*, Schubértia Mirb., Condylocárpus *Salisb.*
*Derivation.* From *taxus*, the yew, and *eidos*, like ; the trees resembling the yew.

*Gen. Char.* *Male flowers* in catkins, disposed in a compound pyramidal spike. *Pollen* of each flower borne in 5 cases, attached to the scale at its inner base.—*Female flowers* in catkins, 2—3 together ; near the base of the spike of catkins of male flowers ; each consisting of a small number of flowers. *Ovules* 2 to an ovary. *Strobile* globose. *Scales* peltate, angled. *Seed* angled in outline, and having angular projections on the surface ; its integument very thick. *Cotyledons* 6—7.

*Leaves* simple, alternate, exstipulate, deciduous ; 2-ranked, linear *Flowers* yellowish, powdery, inconspicuous.

Lofty deciduous trees, natives of the southern part of North America ; separated from the genus *C*upréssus, principally because the male catkins are disposed in loose spreading bunches, instead of being solitary and terminal ; and because the female catkins are roundish and scaly, like the male, and each scale has only 2 perfect flowers. The genus is also distinguished by the embryo having from 5 to 9 cotyledons. The species are generally propagated by seeds, and the varieties by cuttings, layers, or inarching.

♀ 1. T. DI'STICHUM *Rich.* The two-ranked-*leaved* Taxodium, *or Deciduous Cypress.*

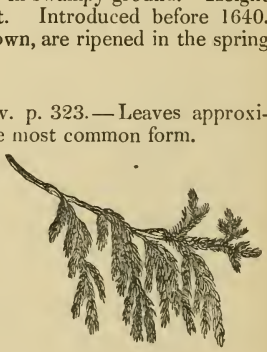
*Identification.* Rich. Mém. sur les Conif., p. 53. 143 ; Lamb. Pin., ed. 2., 2. t. 63.
*Synonymes.* Cupréssus disticha *Lin. Sp. Pl.* 1422., *Pursh Fl. Amer. Sept.* ; *C.* americàna *Cat. Carol.* 1. p. 11. ; *C.* virginiàna *Comm. Hort.* 1. p. 113. ; Schubértia disticha *Mirb.* ; bald Cypress, Cypress, *Amer.* ; Cyprès de l'Amérique, Cyprès chauve, *Fr.* ; zweyzeilige Cypresse, *Ger.* ; Cipresso gaggia, *Ital.*
*Engravings.* Rich Conif., t. 10 ; Michx. North Amer. Syl., 3. ; Lamb. Pin., ed. 2., t. 63. ; the plates of this tree in Arb. Brit., 1st edit., vol. viii. ; and our *fig.* 2006.

*Spec. Char., &c.* Leaves 2-rowed, flat, deciduous. Male flowers leafless and panicled. Cones somewhat globose. (*Willd.*) A lofty deciduous tree. Florida, and on the Delaware and Mississippi, in swampy ground. Height 100 ft. to 150 ft. ; in England, 50 ft. to 80 ft. Introduced before 1640. It flowers in May, and the cones, which are brown, are ripened in the spring of the following year.

*Varieties.*

♀ *T. d.* 1 *pàtens* Ait. Hort. Kew. ed. 2. v. p. 323. — Leaves approximate, and strictly 2-rowed. This is the most common form.

♀ *T. d.* 2 *nùtans*, l. c. T. d. péndula *Loud. Hort. Brit.* — Leaves much longer than those of the species, and drooping, but more remote and thinner in texture, with a tortuous curly appearance when they first appear in spring. A specimen of the early shoots is shown in *fig.* 2005.


2005. T. d. nùtans.

♀ *T. d.* 3 *excélsum* Booth. — Horticultural Society, in 1837.

♀ *T. d.* 4 *sinénse.* T. sinénse *Noisette.* — How far it differs from T. d. nùtans, or whether it differs at all, we are uncertain. H. S., in 1837.

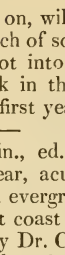
♀ *T. d.* 5 *s. péndulum.* T. sinénse péndulum *Hort.* — H. S., in 1837.

The deciduous cypress is one of those trees that sport exceedingly in the seed-bed ; and, hence, wherever a number of them are found growing together, scarcely any two appear to have precisely the same habit. This is strikingly the case at White Knights, where there are several scores of trees, presenting a variety of forms and foliage almost as great as their number. They may all, however, as well as those enumerated in the above list, be reduced to the following four forms. 1. The species, or normal form, in which the branches are horizontal or somewhat inclined upwards. 2. T. d. péndulum, with the branches pendulous. 3. T. d. nùtans, with the branches horizontal, and the young shoots of the year pendulous ; the leaves being twisted and compressed round them in the early part of the season, but fully expanded, like those of the species, towards the autumn. Most of these shoots have their points killed every winter, and many of them are entirely destroyed. 4. T. d. tortuòsum péndulum, with the leaves on the young shoots tortuous, and the branches pendulous. There is a very elegant specimen of this tree at White Knights. With respect to the T. sinénse of cultivators, we have not been able to discover in what it differs from T. nùtans ; and of T. d. excélsum we have only seen very small plants.

2006. T. distichum.

The deciduous cypress, in America, attains its largest size in the swamps of the southern states and the Floridas, on the deep miry soil of which a new layer is every year deposited by the floods. The roots of large trees, particularly in situations subject to inundation, are charged with conical protuberances, commonly from 1 ft. 6 in. to 2 ft. high, and sometimes from 4 ft. to 5 ft. in thickness: they are always hollow, smooth on the surface, and covered with a reddish bark, like the roots, which they resemble also in the softness of their wood. Michaux says that "no cause can be assigned for their existence: they are peculiar to the deciduous cypress, and begin to appear when it is only 20 ft. or 25 ft. high." The Rev. J. Mitford has suggested that the absorption of air is the probable purpose for which the knobs protrude above the water. They are made use of by the negroes for beehives. The wood is universally employed, throughout the United States, for the best kind of shingles; and in Louisiana it is used for almost every other purpose to which timber is applied. A rich moist soil is required to produce the deciduous cypress of any size, and it will not thrive in elevated situations. The species is increased by seeds, which are procured from imported cones: they may be treated in all respects like those of the common evergreen cypress, and, like them, come up the first year. The tree may also be propagated by cuttings, put in in autumn, in sand or heath soil, in the shade, and kept moist; a practice which, Bosc observes, is in use in the nurseries at Orleans, but not in those at Paris Cuttings of the winter's wood, or of the

summer's shoots with the leaves on, will root in a vessel of water in a very few weeks: and, if an inch of soil be placed at the bottom of the vessel, the fibres will root into it, and the plants may be used as if they had been struck in the usual manner. Layers, put down in moist soil, root the first year.


2007.
T. sempervìrens.

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♀ *T. sempervìrens* Lamb. Pin., ed. 2., 2. t. 64. Our *fig.* 2007. — Leaves distichous, linear, acute, evergreen, coriaceous, glabrous, opaque. (*Lamb.*) An evergreen tree. Discovered by Mr. Menzies, on the north-west coast of America, in 1796; and immense trees of it were seen by Dr. Coulter in 1836; but it has not yet been introduced. It will probably prove hardy; and, in that case, its introduction would be exceedingly desirable.

## Genus XII.

JUNI'PERUS *L.* The Juniper. *Lin. Syst.* Diœ'cia Monadélphia.

*Identification.* Lin. Gen., No. 1134.; Juss., 413.; Lamb. Pin. 2.
*Synonymes.* Sabìna *Bauh.*; Cèdrus *Tourn*; Genévrier, *Fr.*; Wachholder, *Ger.*; Ginepro, *Ital.*
*Derivation.* From *juneprus*, rough or rude, *Celt.*, the plants of this genus being stiff shrubs; or from *juniores pariens*, from the young and old leaves being on the tree at the same time, or with reference to the young fruit being produced before the old fruit drops off.

*Gen. Char.* *Male flowers* in axillary or terminal catkins. *Pollen* of each flower in 3—6 cases, attached to the basal edge of the scale, and prominent from it.—*Female flowers* in axillary catkins, resembling a bud; consisting of 13 fleshy ovaries; bracteated at the base. *Ovules* 1 to an ovary. The ovaries coalesce, and become a fleshy juicy strobile, resembling a berry. *Seeds* 1—3, each obscurely 3-cornered, and having 5 gland-bearing pits towards the base. (*G. Don.*)

*Leaves* simple, opposite or ternate, exstipulate, evergreen; narrow, rigid, and not rarely minute and scale-shaped. *Flowers* yellowish, from the colour of the pollen.—Trees evergreen, low, or shrubs; natives of Europe, Asia, Africa, and North America; mostly hardy in British gardens.

The wood of all the species is more or less aromatic, and very durable. The species, with the exception of three or four, which have grown to some size, and ripened fruit in England, are very imperfectly known to British cultivators; and, probably, some of those kinds which we have given as distinct species may prove not to be so. We could not, however, avoid this, from the impossibility of seeing any plants of many of the kinds, but those which were quite young. All the species are readily propagated by seeds, which retain their vitality, when kept in the berry, for several years; and, when sown, lie one year, and often two years, before they come up. They may also be increased by cuttings, planted in sandy soil, in a shady situation, in the autumn, and covered with a hand-glass during winter; or by layers. The species in British gardens are thus arranged: —

§ i. *Oxýcedri.* — Leaves spreading in the adult Plants.

A. *Natives of Europe*

1. commùnis. 2. *Oxýcedrus.* 3. macrocárpa.

B. *Native of Asia.*

4. drupàcea.

C. *Native of North America.*

5. virgínica.

§ ii. *Sabìnæ.*—Leaves imbricated in the adult Plants.

A. *Natives of Europe.*

6. *S*abìna. 7. phœnícea. 8. lýcia. 9. thurífera.

B. *Natives of Asia.*

10. excélsa. 11. squamàta. 12. recúrva. 13. chinénsis.

C. *Native of South America.*

14. uvífera.

§ iii. *Species of which little is known.*

15. tetragòna. 16. fláccida. 17. mexicàna. 18. dealbàta. 19. flagellifórmis. 20. gossanthànea. 21. Bedford*iàna.* 22. Hudson*iàna.*

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## § i. *Oxýcedri.* — *Leaves spreading in the adult Plants.* D. Don.

A. *Natives of Europe.*

1. *J.* COMMU'NIS *L.* The common Juniper.

*Identification.* Lin. Sp. Pl., 1470.: Engl. Flor., 4. p. 251.; N. Du Ham., 6. p. 46.
*Synonymes.* *J.* vulgàris, &c., *Raii Syn.* 444.; *J.* minor *Fuchs Hist.* p. 78.; Genévrier commun, *Fr.*; gemeiner Wachholder, *Ger.*; Ginepro nero, *Ital.*
*Engravings.* Engl. Bot., t. 1100.; N. Du Ham., t. 15. f. 1.; our *fig.* 2014. to our usual scale; and *fig.* 2013. of the natural size.

*Spec. Char., &c.* Leaves in threes, spreading, mucronate. Berries longish. (*Willd.*) An evergreen shrub. Europe, on the sides of hills and in sandy plains, and also in North America and Asia. Height 5 ft. to 10 ft., rarely 15 ft. Flowers whitish yellow, from the pollen; ripening in May. Fruit purple or black; ripe the following spring.

*Varieties.*

J. *c.* 1 *vulgàris* Park. Theat. 1029. *J.* v. fruticòsa *Bauh. Pin.* p. 488.; *J.* c. eréctis *Pursh Fl. Amer. Sept.* ii. p. 646.—Leaves, according to Hayne, ½ in. in length. A bushy shrub, from 3 ft. to 5 ft. high; but, in favourable situations, growing much higher.

J. *c.* 2 *suécica* Ait. Hort. Kew. ed. 2. v. p. 414. ? *J.* c. fastigiàta *Des Moulin's Cat. des Plantes de la Dordogne; J.* stricta *Hort.*; *J.* suécica *Mill. Dict.* No. 2.; *J.* vulgàris árbor *Bauh.*; the Swedish, or Tree, Juniper. (*fig.* 2008) — Leaves spreading and acute, 1 in. in length; branches erect, with oblong fruit. This kind was supposed by Miller to be a species because he found it always come true from seed. It generally attains the height of 10 or 12 feet, and sometimes of 16 or 18 feet; in the Forest of Fontainebleau, it has attained the height of 50 ft., and tables, cabinets, and other pieces of furniture have been made from its timber. The branches are more erect than those of the common juniper; the leaves are narrower, they end in more acute points, and are placed farther asunder on the branches; the berries are also larger and longer. It is a native of France, Sweden, Denmark, and Norway, and is in common cultivation in British nurseries.

2008. *J.* c. suécica.

2009. *J.* c. nàna.

J. *c.* 3 *nàna* Willd. Sp. Pl. iv. p. 854. *J.* commùnis β *Fl. Br.* 1086.

*J.* c. saxátilis *Pall. Ross.* ii. t. 54.; *J.* alpìna *Ray Syn.* 444.; *J.* alpìna mìnor *Ger. Emac.* 1372.; *J.* mìnor montàna, &c., *Bauh. Pin.* 489.; *J.* nàna *Smith Engl. Fl.* iv. p. 252.; *J.* sibírica *Hort.*; *J.* däùrica *Hort.* and *Booth* (see *Gard. Mag.* for 1840, p. 10.); *J.* c. montàna *Ait. Hort. Kew.* v. p. 415. Our *fig.* 2009. — Leaves broader and thicker, and fruit longer, than in the species.

J. *c.* 4 *oblónga.* *J.* oblónga *Hort.* (*fig.* 2010.) — Leaves longer than in any other variety; fruit small, oblong. Horticultural Society's Garden.

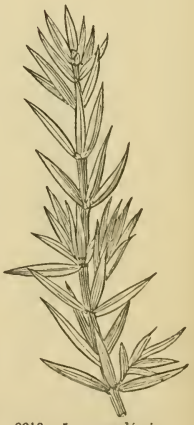
2010. *J.* c. oblónga.

2011. *J.* c. o. péndula.

J. *c.* 5 *o. péndula.* (*fig.* 2011.)—We apply this name to a plant at Kew which resembles *J.* c. oblónga in the Horticultural Society's Garden in every respect; except that the habit of the main branches is fastigiate, and the points of the shoots pendulous. It forms a very graceful plant, about 5 ft. high.

J. *c.* 6 *canadénsis.* *J.* canadénsis *Lodd. Cat.* ed. 1836. (*fig.* 2012.) — A handsome vigorous-growing variety, coming near in foliage to *J.* c. nàna; but, as we have only seen a small plant of it in the collection of Messrs. Loddiges, we are unable to depict the particular feature in which it differs from the species.

J. *c.* 7 *depréssa* Pursh Fl. Amer. Sept. ii. 646. —A native of North America, and does not grow above 1 or 2 feet high; though its root will sometimes cover a space of from 15 ft. to 20 ft. in diameter. It does not appear to have been introduced. Possibly this may be the *J.* canadénsis of *Lodd. Cat.*, No. 6. above.



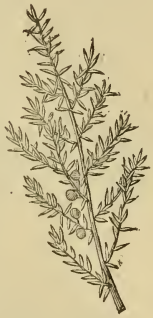
2012. *J.* c. canadénsis.

*Other Varieties.* In Loddiges's *Catalogue*, there are *J.* cracòvia and *J.* hibérnica, very small plants, but obviously belonging to *J.* commùnis. There can be no doubt of this, though, as in the case of *J.* c. canadénsis in the same collection, we cannot point out in

what the difference from the species consists. There are other names current in the nurseries, in some of which they are applied to *J.* commùnis, in others to *J. Sabìna*, and in others to *J.* virginiàna.

2013. *J.* commùnis.

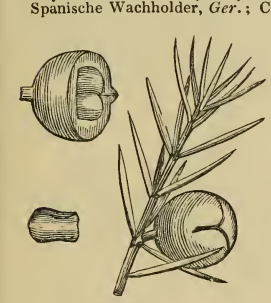
The rate of growth of the taller-growing varieties, in the climate of London, is from 6 in. to 9 in. a year, till the plants are 6 or 8 feet high, after which they grow more slowly; and their duration is more than a century. The wood is finely veined, of a yellowish brown, and very aromatic. It weighs, when dry, above 42 lb. per cubic foot. The berries are, however, the most useful product of the juniper, being used for flavouring gin. The plant makes good garden hedges, and may be clipped into any shape.



2014. *J.* commùnis.

2. *J.* OXY'CEDRUS *L.* The Sharp-Cedar, *or brown-berried*, Juniper.

*Identification.* Lin. Sp. Pl., 1470.; N. Du Ham., 6. p. 47.
*Synonymes.* *J.* màjor *Cam. Epit.* 54.; *J.* m. monspeliénsium *Lob. Ic.* 2. p. 223.; *J.* phœnícea, &c., *J. Bauh. Hist.* 1. p. 277.; *J.* màjor, &c., *C. Bauh.* p. 489.; Cèdrus phœnícea *Matth. Valgr.* 127.; Oxýcedrus *Clus. Hist.* p. 39.; *O.* phœnícea *Dod. Pempt.* p. 853.; the prickly Cedar; le Cade, *Fr.*; Spanische Wachholder, *Ger.*; Cedro Fenicio, *Ital.*
*Engravings.* N. Du Ham., 6. t. 15. f. 2.; our *fig.* 2016. to our usual scale; and *fig.* 2015. of the natural size.



2015. *J.* Oxýcedrus.

*Spec. Char., &c.* Leaves in threes, spreading, mucronate, shorter than the berries. (*Willd.*) An evergreen shrub. Spain, Portugal, and the South of France. Height 10 ft. to 12 ft. Introduced before 1739. Flowering in May and June.

2016. *J.* Oxýcedrus

*Variety.*

J. o. 2 *taúrica* Hort.—Tolerably distinct; and, according to Mr. Gordon, possibly *J.* drupàcea. (*Gard. Mag.*, 1840, p. 10.)

Closely allied to *J.* commùnis. The branches are small and taper, without angles. Berries very large, of a brownish red, and marked with two white lines. Handsome when allowed sufficient space; and rather more tender than *J.* commùnis.

3. *J.* MACROCA'RPA *Smith.* The large-fruited Juniper.

*Identification.* Smith in Fl. Græc. Prod., 2. p. 263.; Tenore Syll. Fl. Neapol.
*Synonymes.* ? *J.* Oxýcedrus var.; *J.* màjor, baccâ cæruleâ, *Tourn. Inst.* 589.
*Engravings.* Lob. Icon., 2. p. 223. f. 1.; and our *fig.* 2017. of the natural size, copied from the figure of L'Obel.

*Spec. Char., &c.* Leaves ternate, spreading, mucronate, sharply keeled, one-nerved. Berries elliptical, longer than the leaf. (*Smith, Fl. Gr.*, 2. p. 267.) An evergreen

2017. *J.* macrocárpa.

shrub. Greece. Height 10 ft. to 12 ft. Introduced in 1838, or before; flowering in May and June.

The leaves are like those of *J. Oxýcedrus*, but the berries are twice as large, and black, covered with a violet bloom; a handsome plant, though very probably only a variety of *J. Oxýcedrus*.

B. *Native of Asia.*

4. *J.* DRUPA'CEA *Lab., N. Du Ham.* The drupaceous, *or large-fruited*, Juniper.

*Identification.* Labillard. Icon. Plant. Syr. Dec., 2. p. 14.; Mart. Mill., No. 11.; Desfont. Hist. des Arb. et Arbris. 2. p. 558.
*Synonyme.* *J.* màjor *Bellon Obs.* 2. p. 162.
*Engravings.* Clus. Icon.; Labillard. Icon.; our *fig.* 2018. reduced to our usual scale from the figure of La Billardière; and *fig.* 2019., which shows the scales of the fruit much opener than is usual in Juniperus; it is, however, a correct copy of the original.

2018. *J.* drupacea.

2019. *J.* drupàcea.

*Spec. Char., &c.* Leaves in threes, spreading, acute, three times shorter than the fruit. Nut 3-celled. (*Labillard.*) An evergreen shrub. Syria. Introduced in 1820; but we have only seen young plants.

C. *Native of North America.*

5. *J.* VIRGINIA'NA *L.* The Virginian Juniper, *or Red Cedar.*

*Identification.* Lin. Sp. Pl., 1471.; Michx. N. Amer. Syl., 3. p. 222.
*Synonymes.* *J.* màjor americàna *Raii Hist* 1413.; *J.* máxima, &c., *Sloan;* Ginepro di Virginia.
*Engravings.* Michx. N. Amer. Syl., 3. t. 155.; the plates of this tree in Arb. Brit., 1st edit., vol. viii.; and our *fig.* 2020.

*Spec. Char., &c.* Leaves in threes, the three growing together at the base; young ones imbricated, old ones spreading (*Willd.*) An evergreen tree. Maine to Georgia, in woods and plains. Height 40 ft. to 50 ft.; in England, 30 ft. to 40 ft. Introduced before 1664; flowering in May, and ripening its dark blue fruit in October.

*Varieties.*

J. *v.* 2 *hùmilis* Lodd. Cat. ed. 1836. — Habit dwarf.

J. *v.* 3 *caroliniàna.* *J.* caroliniàna *Du Roi, Mill. Dict.* No. 2. — Miller says that the lower leaves of this kind are like those of the Swedish juniper; but that the upper leaves are like those of the cypress; while in the Virginian cedar all the leaves are like those of the juniper. (See p. 1082.)

*Other Varieties.* The red cedar varies exceedingly from seed. At White

Knights, where there are some hundreds of trees, some are low and spreading, and others tall and fastigiate; some bear only male blossoms, and others only female ones. The foliage, in some, is of a very light hue; in others, it is glaucous; and in some a very dark green. The fruit, also, varies considerably in size; but, perhaps, the most striking variety is one in which the branches are decidedly pendent. Miller mentions a variety which has leaves like a cypress. There are a great many varieties at Elvaston Castle; and some with glaucous foliage of very great beauty.

The rate of growth, in the climate of London, is 10 or 12 feet in ten years; and the duration of the tree is upwards of a century. The name of red cedar has reference to the heart-wood of this tree, which is of a beautiful red, while

2020. *J. virginiàna.*

the sap-wood is perfectly white. It is imported into England for the manufacture of black-lead pencils; though the Bermuda juniper is preferred for that purpose. In Britain, the red cedar is not planted as a timber tree; though, from the size which it attains in deep dry sandy soils, it might be worth while to plant it in masses for this purpose. As an ornamental tree or large shrub, it is highly valued, either for planting singly on lawns, or in groups along with other trees and shrubs. It is more especially adapted for grouping with other Cupréssinæ, the pine and fir tribe, and the yew.

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J. *bermudiàna* L. and J. *nepalénsis* Hort. (Cupréssus nepalénsis *Hort.*) are described in our first edition.

## § ii. *Sabìnæ.* — *Leaves of the adult Plant imbricated.* D. Don.

### A. *Natives of Europe.*

### 6. *J.* Sabi'na. The common Savin.

*Identification.* Lin. Sp., 1472.; Desf. Hist. des Arb., &c., 2. p. 559.

*Synonymes.* Sabine, *Fr.*; stinkender Wachholder, *Ger.*; Planta daunata and Cipresso des Maghi, *Ital.*
*Engravings.* Pall. Fl. Ross., t. 56. f. 2.; and our *fig.* 2026.

*Spec. Char., &c.* Leaves oval, opposite, imbricated, somewhat acute, convex on the back; the male catkins pedunculate. Berries of a blackish blue, generally monospermous. (*N. Du Ham.*) A low evergreen shrub. South of Europe and Tauria. Height 7 ft. to 8 ft. Introduced before 1548; flowering in March and April, and ripening its blackish blue fruit in the spring of the following year.

*Varieties.*

- J. S. 1 *cupressifòlia* Ait. Hort. Kew. v. p. 414. *J.* lusitánica *Mill. Dict.* No. 11.; *S*abìna *Dod. Pempt.* 854.; la Sabine mâle, *Fr.* (*fig.* 2021.) — Leaves like those of a cypress.
- J. S. 2 *tamariscifòlia* Ait. l. c. *J. S*abìna *Mill. Dict.* No. 10. la Sabine femelle (*fig.* 2022.)
- J. S. 3 *fòliis variegàtis* Mart. Mill. — Leaves variegated.

2021.
*J S.* cupressifòlia.

2022. *J. S.* tamariscifòlia.

2023. *J. S.* prostràta.

2024. *J. S.* alpìna.

- J. S. 4 *prostràta. J.* prostràta *Michx.*; *J.* rèpens *Nutt.*; *J.* hudsónica *Lodd. Cat.* 1836. (*fig.* 2023.)—A low trailing plant, seldom rising above 6 or 8 inches in height, but rooting into the soil, and extending its branches to a great distance.
- J. S. 5 *alpìna. J.* alpìna *Lodd. Cat.* 1836. (*fig.* 2024.)—Procumbent, and more slender in its habit; but, in other respects, only slightly different from *J.* prostràta.

The savin, though generally seen, in British gardens, as a low spreading shrub, has sometimes an upright trunk, clothed in a reddish brown bark, and rising to the height of 10 or 12 feet, or even higher. Its branches are nearly straight, very much ramified, and form, with the trunk, a regular pyramid. Its young branches are entirely covered with imbricated leaves, which have a very strong and disagreeable odour, and a very bitter taste. The male flowers are disposed in small catkins, on peduncles covered with little imbricated leaves, and are dispersed laterally along the youngest branches. The female flowers are generally produced on separate trees, and are disposed in the same manner: they are succeeded by oval berries, of a blue so deep as to be almost black, and are about the size of a currant: they generally contain only one seed, which is long, oval, and somewhat compressed. A very common ornamental evergreen, thriving in the poorest soils, and in exposed situations; in the latter remaining an humble prostrate shrub, and in the former attaining a considerable size.

2025. *J.* Sabìna.

♀ 7. *J.* PHŒNI'CEA *L.* The Phœnician Juniper.

*Identification.* Lin. Sp. Pl., 1471. ; Pall. Ross., 2. p. 14. 57. ; N. Du Ham., 6. p. 47.
*Synonymes.* Cèdrus phœnícea mèdia *Lob. Icon.* 2. p. 221. ; Oxýcedrus lýcia *Dod. Pempt.* 583. ; Genévrier de Phénicie, *Fr.* ; dichtnadliger Wachholder, *Ger.* ; Cedro licio, *Ital.*
*Engravings.* Pall. Ross., t. 56. ; N. Du Ham., 6. pl. 17. ; and our *fig.* 2026.

*Spec. Char., &c.* Leaves in threes, obliterated, imbricated, obtuse. (*Willd.*) An evergreen shrub or low tree. South of Europe, Russia, and the Levant. Height 10 ft. to 20 ft. Cultivated in 1683. Flowering in May and June, and ripening its pale yellow fruit at the end of the second year.

The young branches are entirely covered with very small leaves, which are disposed in threes opposite to each other, closely covering the surface of the branches, and laid one upon another like scales. These leaves are oval, obtuse, somewhat channeled, and convex on the back, perfectly smooth. On

2026. *J.* phœnícea.

some of the branches, a few sharp linear leaves are found, which are about 3 lines long, and quite open. The male and female flowers are sometimes found on the same tree, but they are generally on different trees. The form and disposition of the male and female flowers closely resemble those of *J.* Sabìna. The berries generally contain 9 bony seeds in each, of an irregular oval, slightly compressed and angular ; the pulp is dry and fibrous, and in the middle of it are 3 or 4 bladders, filled with a sort of resinous fluid. Much less common than so fine a shrub deserves to be.

♂ ♀ 8. *J.* (P.) LY'CIA *L.* The Lycian Juniper.

*Identification.* Lin. Sp., 1471. ; Pall. Ross., ii. p. 14. t. 56. ; Ait. Hort. Kew., v. p 415.
*Synonymes.* *J.* p. β lýcia *N. Du Ham.* vi. p. 47. ; cipressen Wachholder, *Ger.*
*Engravings.* Pall. Ross., t. 56. ; N. Du Ham., 6. t. 17. ; our *fig.* 2027., and *fig.* 2028. from Pallas.

*Spec. Char., &c.* Leaves in threes, imbricate on all sides, ovate, obtuse. Male flowers at the ends of the branches, in a conical ament ; and the fruit single from the axils below them, on the same branch. Berries large, oval, and, when ripe, brown. An evergreen shrub. South of Europe, Levant, and Siberia. Height 10 ft. to 15 ft. Introduced in 1759, but not common in collections.

According to Pallas, *J.* lýcia is an entirely prostrate shrub, with the trunk branching from the very bottom, and often thicker than the human arm. This

and the branches, are often variously deformed, with scarcely any outer bark. The wood smells very strong, like that of the Bermudas cedar. Branches and branchlets wand-like, and covered with a testaceous bark. Shoots dark green, dichotomous, and imbricate with scale-formed sharp leaves. Berries terminal, globular, middle-sized, nearly black when ripe, and covered with a glaucous bloom; containing 3 or 4 stones. Pallas adds that it greatly resembles the dwarf savin, and that it differs principally in the greater thickness of the shoots, and in the leaves being acute and less clustered. A very doubtful species.

2027. J. (p.) lycia.

2028. J. (p.) lycia.

♀ 9. *J.* THURI'FERA *L.* The incense-bearing, *or Spanish*, Juniper.

*Identification.* Lin. Sp. Pl., 1471.; Ait. Hort. Kew., ed. 2, 5. p. 413.
*Synonymes.* *J.* hispánica *Mill. Dict.* No. 13.; Cèdrus hispánica, &c., *Tourn. Inst.* p. 588.
*Engraving.* *Fig.* 2029. from a specimen received from Mr. Lambert.

*Spec. Char., &c.* Leaves imbricate in 4 rows, acute. (*Willd.*) An evergreen tree. Spain and Portugal. Height 20 ft. to 30 ft. Cultivated in 1752. Flowering in May and June, and ripening its large black berries at the end of the following year.

The leaves are acute, and lie over each other in four rows, so as to make the branches appear four-cornered. Berries very large, and black when ripe. There is a tree at Mr. Lambert's seat at Boyton, which, in 1837, was 28 ft. high, with a trunk 9 in. in diameter. It strikes readily from cuttings, and deserves to be extensively propagated.

2029. *J.* thurifera.

## B. *Natives of Asia.*

♀ 10. *J.* EXCE'LSA *Willd.* The tall Juniper.

*Identification.* Willd. Sp. Pl., 4. p. 852.; Pursh Fl. Amer. Sept., 2. p. 647.
*Synonymes.* *J.* Sabina var. *Pall. Ross.* 2. p. 15.; Himalaya Cedar-wood.
*Engraving.* *Fig.* 2030. from a plant about 2 ft. high.

*Spec. Char., &c.* Leaves opposite, somewhat obtuse, with a central gland; 4-ranked and imbricate; slender, acute, disposed in threes, and spreading. Stem arboreous. (*Willd.*) A tall evergreen tree. Siberia, Himalayas, and North America, on the Rocky Mountains. Height 20 ft. to 30 ft. rarely 40 ft. Introduced in 1806, but has not yet flowered in British gardens.

A very handsome and elegant tree, with an upright trunk and slightly pendulous branches. Leaves opposite, imbricated in 4 rows, and having a raised line on the back. It is a very free grower; and apparently as hardy as *J.* virginiàna.

2030. *J.* excelsa.

11. *J* SQUAMA'TA *D. Don.* The scaled Juniper, *or creeping Cedar.*

*Identification.* Lamb. Pin., 2. No. 66.; D. Don Fl. Nepalensis, p. 35.; Royle Illust., p. 351.
*Synonymes.* *J.* squamòsa *Wall.*: see *Gard. Mag.* 1840, p. 10.
*Engraving.* Our *fig.* 2107. in p. 1110.

*Spec. Char., &c.* Leaves in threes, closely imbricated, ovate-oblong,

more or less pointed; remaining on after they are withered; young ones inflexed at the apex, as if obtuse. Berries ovate, umbilicate on the top. Branches and branchlets crowded, round. Stem prostrate. (*Lamb. Pin.*) A large, decumbent, much-branched evergreen shrub. Nepal, and on the Bhotan Alps. Height 3 ft. Introduced in 1824. Flowering in August; but only young plants are in British gardens.

12. *J.* RECU'RVA *Ham.* The recurved *Nepal* Juniper.

*Identification.* Ham. MSS., as quoted in Don's Flora Nepalensis, p. 55.
*Engraving.* Our *fig.* 2031.

*Spec. Char., &c.* Leaves linear-lanceolate, mucronate, loosely imbricated, smooth, convex beneath. Berries roundish-oval, tubercled. Branches and branchlets recurved. (*D. Don.*) An evergreen shrub. Nepal, in Narainhetty. Height 5 ft. to 10 ft. Introduced in 1830. Flowering in May, and ripening its fruit in November following.

It forms a graceful bush, or low tree, from its pendulous habit; and it is readily distinguished from all the other species, not only by this circumstance, but by the mixture of its brown half-decayed chaffy leaves of the past year with its greenish grey leaves of the present year. The bark is rough, brown, and soon begins to curl up, when it has a rough appearance, and ultimately scales off. It is as hardy as the common juniper, and deserves to be as generally cultivated.

2031. *J.* recúrva.

13. *J.* CHINE'NSIS *L.* The Chinese Juniper.

*Identification.* Lin. Syst., 894.; Reich., 4. 277.; Mant., 127.; ? Lour. Coch., 636.
*Synonyme.* ? *J.* c. Smithii Arb. Brit. 1st edit. p. 2505.
*Engravings.* Our *figs.* 2032. and 2033. from living specimens.

*Spec. Char., &c.* Leaves decurrent, imbricate-spreading, clustered; stem leaves in threes, branch leaves in fours. (*Willd.*) An evergreen tree. China. Height 15 ft. to 20 ft. Introduced in 1820, or before. Flowers yellowish; May. Fruit blackish blue; ripe in November.

There are two plants in the Horticultural Society's Garden bearing the name of *J.* sinénsis, male and female, 12 ft. and 10 ft. high. The leaves are green, short, and imbricated; the fruit rough, angular, and dry.

2032. *J.* chinénsis.

2033. *J.* chinénsis.

14. *J.* UVI'FERA *D. Don.* The Grape-bearing, *or large-fruited*, Juniper.

*Identification.* Lamb. Pin., 2. No. 67.
*Engraving.* Our *fig.* 2107. in p. 1110.

*Spec. Char., &c.* Leaves ovate, obtuse, adpressed, imbricated in 4 rows. Branchlets short, erect, crowded, knotted. Drupes terminal, roundish. (*Lamb. Pin.*) A decumbent, much branched, evergreen shrub. Cape Horn, and the only species in the southern hemisphere. Introduced about the beginning of the present century, but rare in British gardens.

*Other Species of Juníperus, of recent Introduction, but of which little is known.*

J. *tetragòna* H. B. & Kth. — A shrub with low-growing, almost flat, branches; the leaves are in 4 rows, and lie close on each other, rather thick,

obtuse, egg-shaped ; the fruit globular and small. (*Linnæa*, vol. xii. p. 496.) Mexico, on mountains at from 10,000 ft. to 11,000 ft. elevation, where it grows to the height of 4 or 5 feet. Introduced in 1838. (*Gard. Mag.*, 1839, p. 242.)

J. *fláccida* Schiede.—A strong high tree with pendent shoots, with 4-rowed, scaled, egg-shaped, little lance-like leaves ; the fruit globular, with projecting pointed scales. Introduced in 1838. (*Ibid.*, p. 241.)

J. *mexicàna* Schiede. — A high pyramidal tree with twigs and leaves resembling those of *C*upréssus thurífera. The leaves do not always stand in threes on the twigs, but are often opposite ; they are egg-shaped, and pointed ; on the points of the youngest shoots they are only from ½ to ¾ of a line long. (*Ibid.*, p. 241.) Had not been introduced in 1841.

J. *dealbàta* Hort.—Supposed to be a native of North-west America. It has the habit of the common juniper, but with small, imbricated, sharp-pointed leaves, rather distant on the shoots ; the latter are rather slender, and of a beautiful glaucous colour, more particularly in the early part of summer. The scent is as strong as that of *J. S*abìna. Quite hardy. Introduced in 1839. Hort. Soc. (*Gard. Mag.*, 1840, p. 640.)

J. *flagelliformis* Hort.—A native of China, with long, slender, closely imbricated shoots (both young and old), very much resembling fine whipcord. Shoots glaucous, with sharp lanceolate leaves. The fruit is small, globular, but sometimes slightly angular, and very glaucous. Quite hardy, and strikes freely from cuttings of the two-years-old wood. Introd. 1839. H. S. (*Ibid.*)

J. *gossainthànea* Hort.—There are small plants bearing this name in the collection of Messrs. Loddiges, which closely resemble *J.* chinénsis, but the shoots are more slender.

J. *Bedford*iàna *Hort.*—Closely resembles *J.* virginiàna.

J. *Hudson*iàna *Pin. Wob.* p. 208.—A dwarf procumbent shrub, about 2 ft. high. Probably a variety of *J. S*abìna.

J. *barbadénsis* L., described in our first edition, is here omitted as being rather tender.

J. *hemisphæ'rica* Presl grows above the boundary line of trees on Mount Etna, as high as 7,100 ft.; but it is not yet introduced.

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## Order LXXVIII. *E*MPETRA'CEÆ.

*Identification.* Nutt. Gen., 2. 233. ; Don in Edinb. New Phil. Journ., 1826.

*Ord. Char. Flowers* diœcious. *Perianth* free, composed of imbricated scales, which are disposed in two series. *Stamens* equal in number to the inner series of scales, and alternating with them. *Authers* roundish, of two distinct cells. *Ovarium* free, seated on a fleshy disk, 3—6- or 9-celled. *Ovulum* solitary, ascending. *Style* 1. *Stigma* radiating, with as many rays as there are cells in the ovarium. *Fruit* fleshy, surrounded by the persistent perianth of 3 to 9 bony cells. *Seed* solitary. *Embryo* terete, in the centre of the albumen. *Radicle* inferior.

*Leaves* simple, exstipulate, alternate or subverticillated, evergreen ; linear, heath-like. *Flowers* axillary, minute. — Evergreen undershrubs ; natives of Europe and North and South America.

The genera in British gardens are three, which are thus contradistinguished : —

*E'*mpetrum. — Calyx 3-leaved, with six scales at the base. Petals and stamens 3. Berry depressed, containing 6—9 stones. (*G. Don.*)

Core'ma. — Calyx 3-leaved, naked at the base. Petals and stamens 3. Berry globose, containing 3 stones. (*G. Don.*)

Cerati'ola. — Calyx 2-leaved, with 4 bracteas at the base. Petals and stamens 2. Berry globose, containing 2 stones. (*G. Don.*)

## GENUS I.

### E'MPETRUM *L.* THE CROWBERRY. *Lin. Syst.* Diœ'cia Triándria.

*Identification.* Lin. Gen., 515.; Juss., 126.; Fl. Br., 1072., Tourn., t. 421.: Lamb., t. 803., Gærtn.; t. 106
*Derivation.* From *en*, upon, and *petros*, a rock; in allusion to the place of growth.

*Gen. Char. Calyx* 3-leaved, coriaceous, with 6 imbricated scales at the base. *Petals* 3. *Stamens* 3. *Stigma* 4—9-cleft. *Berry* depressed, 6—9-stoned. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, evergreen; linear, tongue-shaped, obtuse; flat above, convex and marked with a membranaceous line beneath; dark green, shining. *Flowers* axillary, solitary, sessile, dark red. *Berries* black or red. — Shrubs small, branchy, procumbent; natives of the North of Europe, North America, and the Straits of Magellan. Propagated by cuttings or seeds, and thriving best in peat soil.

#### 1. *E.* NI'GRUM *L.* The black Crowberry, *or Crakeberry.*

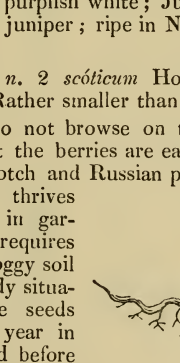
*Identification.* Lin. Sp. Pl., 1450.; Eng. Fl., 4. p. 283.; Mackay Fl. Hib., p. 238.; Hook. Br. Fl., p. 431.
*Synonymes.* Erica coccifera procúmbens *Ger. Emac.* p. 1383.; *E.* Còris folio undecima *Clus. Hist.* 1. p. 45.
*Engravings.* Eng. Bot., t. 526.; our *fig.* 2034. to our usual scale; and *fig.* 2035. of the natural size.

*Spec. Char., &c.* Leaves linear-oblong. Berries black and clustered. (*Hook.*) A low procumbent evergreen shrub. Britain. Height 6 in. to 12 in. Flowers purplish white; June. Berries brownish black, like those of the common juniper; ripe in November.

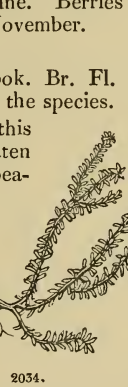
*Variety.*

E. *n.* 2 *scóticum* Hook. Br. Fl. p. 431. — Rather smaller than the species.

Cattle do not browse on this shrub; but the berries are eaten by the Scotch and Russian peasants. It thrives very well in gardens, but requires a moist boggy soil and a shady situation. The seeds remain a year in the ground before they vegetate, and the plants are very slow in their growth. The crowberry is the badge of the clan M'Lean.



2034. *E.* nìgrum.



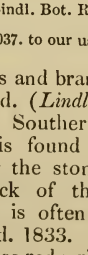
2035.

#### 2. *E.* RU'BRUM *L.* The red-*fruited* Crowberry.

*Identification.* Willd. Sp. Pl., 4. p. 713.; Lindl. Bot. Reg., t. 1783.
*Synonyme.* Cranberry of Staten Island.
*Engravings.* Bot. Reg., t. 1783.; our *fig.* 2037. to our usual scale, and *fig.* 2036. of the natural size.

2036. *E.* rùbrum.

*Spec. Char., &c.* Leaves and branches with woolly margins. Berries red. (*Lindl.*) An evergreen procumbent shrub. Southern point of South America, where it is found along the sandy coast, spreading over the stones, but especially thriving at the back of the low sand-hills by which the shore is often skirted. Height 6 in. to 12 in. Introd. 1833. Flowers brownish purple; July. Berries red; ripe in November.



2037. *E.* rùbrum.

According to Gaudichaud, the red berries are pleasant to eat. It grows freely in peat, and is quite hardy.

## Genus II.

CORE'MA *D. Don.* The Corema. *Lin. Syst.* Diœ'cia Triándria.

*Identification.* D. Don in New Edin. Phil. Journ.; Lindl. in Nat. Syst. of Bot.
*Synonyme.* *E'*mpetrum, in part, *L.*
*Derivation.* From *korēma*, a broom; in allusion to the habit of the plant.

*Gen. Char.* *Calyx* 3-leaved, membranaceous, naked at the base. *Petals* 3. *Stamens* 3. *Stigma* 6-cleft. *Berry* globose, 3-stoned. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, evergreen; scattered, linear, obtuse, spreading, flattish above, and revolute on the margin. *Flowers* in terminal heads, sessile, situated on a hairy disk; white, large: heads having villous scales. *Berries* white. — Shrub small, erect, branchy, rigid, covered with resinous dots; native of the South of Europe.

Closely allied to *E'*mpetrum, from which it has been recently separated, and requiring the same soil and culture in British gardens.

1. C. A'lba *D. Don.* The white-*berried* Corema.

*Identification.* D. Don in New Edin. Phil. Journ.
*Synonymes.* *E'*mpetrum álbum *Lin. Sp.* 1450.; *E.* lusitánicum, &c., *Tourn. Inst.* 579.; *E*rica eréctis, &c., *Bauh. Pin.*; the white-berried Heath, Portugal Crakeberry.
*Engraving.* Our *fig.* 2038.

2038. C. álba.

*Spec. Char., &c.* Stem erect. Branches pubescent. Leaves linear, with revolute margins; somewhat scabrous above. (*Willd.*) A low evergreen shrub. Portugal. Height 6 in. to 12 in. Introduced in 1774. Flowers white; May. Berries white; ripe Nov.

Much branched, rigid, sprinkled with resinous dots.

2. C. Conra'd*ii* Torrey. Conrad's Corema.

*Identification.* Torrey in Lit., and Gard. Mag., xvii.
*Synonyme.* *E'*mpetrum Conràd*ii* Torrey.
*Engraving.* Our *fig.* 2039., from Dr. Torrey.

2039. C. Conràdii.

*Spec. Char., &c.* Branches glabrous. Leaves subverticillate, alternate, narrowly linear; young glandularly hispidulous, adult glabrous. Flowers in small heads, terminal, axillary; scales of perianth 5—6, obovate-oblong, smoothish; stamens 3—4; style 3—4-parted; ovary 3—4-celled. (*Torrey.*) An evergreen heath-like under shrub. N. America, in Monmouth, New Jersey, and other districts, in sandy fields and in pine barrens. Height 6 in. to 12 in. Introduced in 1841. Flowers whitish; April. Berries small, reddish; ripe in August.

## Genus III.

CERATI'OLA *Michx.* The Ceratiola. *Lin. Syst.* Monœ'cia Diándria.

*Identification.* Michx. Fl. Bor. Amer., 2. p. 222.; Lindl. in Nat. Syst. of Botany, ed. 2.
*Derivation.* From *keration*, a little horn; in allusion to the shape of the stigma.

*Gen. Char.* *Calyx* 2-leaved, membranaceous, with 4 scales at the base. *Petals* 2, converging into a tube. *Stamens* 2. *Stigmas* 6-cleft. *Berry* globose, 2-stoned. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, evergreen; spreading, needle-shaped, obtuse, glabrous, and shining; marked beneath with a narrow

furrow; slightly canaliculate above; about ½ in. long; sometimes crowded as if verticillate. *Flowers* unisexual on the same plant; axillary, sessile, numerous (2—4), rarely solitary, brownish; sometimes (like the leaves) verticillate. *Berries* yellow. — Shrub small, upright, branchy, rigid; native of North America.

Grown in British gardens, in peat soil, and propagated by cuttings.

1. C. ERICOÏ'DES. The Erica-like Ceratiola.

*Identification.* Michx. Fl. Bor. Amer., 2. p. 222.; Pursh Fl. Amer. Sept., 1. t. 13.
*Engravings.* Pursh, 1. t. 13.; Bot. Mag., t. 2758.; our *fig.* 2041. to our usual scale, and *fig.* 2040. of the natural size.

*Spec. Char., &c.* Flowers in the axils of the upper leaves, solitary, except a small abortive one by the side of the principal flower. An upright much branched evergreen shrub, greatly resembling a heath; very handsome, but somewhat tender in British gardens. South Carolina. Height 2 ft. to 8 ft. Introd. 1826. Flowers brownish; June. Berries yellow; ripe in October.

2040. C. ericoïdes. 2041.

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## CLASS II. ENDO'GENÆ.

*Stems increasing from within; Leaves with parallel Veins.*

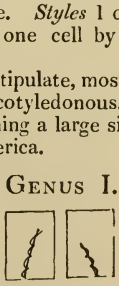
## ORDER LXXIX. SMILA'CEÆ.

*Identification.* Lindl. Nat. Syst. Bot., p. 359.
*Synonymes.* Liliàceæ, in part, *Juss.*; Sarmentàceæ, in part, *Nees;* Smilàceæ, in part, *R. Brown.*
*Derivation.* From *Smilax*, a beautiful youth, fabled to have been changed into this plant (see *Ovid, Met.*); or, from *smilē*, a scraper, from the roughness of the stems of most of the species.

*ORD. CHAR.* *Flowers* unisexual or bisexual. *Perianth* regular, usually 6-parted; but often 4—8-parted. *Stamens* equal in number to the segments of the perianth. *Ovarium* free. *Styles* 1 or more. *Fruit* either a capsule or berry, 3—4-celled, but of one cell by abortion. *Seeds* 1 to 3 in each cell, albuminous.

*Leaves* simple, alternate, exstipulate, mostly evergreen; reticulated, though the genus is considered monocotyledonous. *Flowers* corymbose, axillary.— Rambling shrubs, rarely attaining a large size in British gardens; natives of Europe, Asia, and North America.

### GENUS I.



SMI'LAX *L.* THE SMILAX. *Lin. Syst.* Dioe'cia Hexándria.

*Identification.* Lin. Gen., No. 1120.; Reich., No. 1225.; Schreb. No. 1528.; Tourn., t. 421.; Juss., 42.; Gærtn., t. 16.; Mart. Mill.
*Synonymes.* Smilax, *Fr.* and *Ger.*; Smilace, *Ital.*

*Gen. Char.* *Perianth* 6-parted. *Stamens* 6. *Styles* 3. *Berry* 3-celled; cells 2-seeded. (*G. Don.*)

*Leaves* as in the Order. *Flowers* corymbose, axillary. Shrubs, climbing by means of their tendrils, with stems that are generally prickly. Leaves with veiny disks. The tendrils are intrapetiolar stipules.

In British gardens, they grow in sandy loam, and are readily propagated by division of the root. They are not showy, but they are interesting from their climbing character, as being generally evergreen, and as being some of the few hardy ligneous plants which belong to the grand division of vegetables Monocotyledòneæ.

## § i. *Stems prickly and angular.*

### 1. *S.* A'SPERA *L.* The rough Smilax.

*Identification.* Lin. Sp., 1458.; Vill. Dauph., 3. p. 272.; Mart. Mill., No. 1.
*Synonymes.* Rough Bindweed; Rogo acerbone, *Ital.*
*Engravings.* Schk. Han., 3. 328.; and our *fig.* 2042.

*Spec. Char., &c.* Stem prickly, angular; leaves toothed and prickly, cordate, 9-nerved. (*Willd.*) A climbing evergreen. South of Europe, Asia Minor, and Africa. Height 5 ft. to 10 ft. Introduced in 1648. Flowers whitish; July. Berries red; ripe in September.

*Varieties.*

S. *a.* 2 *auriculàta* Ait. — Leaves ear-shaped at the base.

S. *a.* 3 *mauritánica.* *S.* mauritánica *Poir.* — Introduced in 1820, and there are plants in the Horticultural Society's Garden, and in some private collections.

2042. *S.* áspera.

The roots are thick and fleshy, spreading wide, and striking deep; and they are sometimes sold by the druggists of the South of Europe for those of *S. Sarsaparilla*, as they possess nearly the same qualities, but in an inferior degree; they are also larger, and more porous. In British gardens, this species, which is perhaps the handsomest of those which are hardy, is commonly trained against a wall; but it will also attach itself to rough stakes or trelliswork, though it seldom flowers when so treated.

### 2. *S.* EXCE'LSA *L.* The tall Smilax.

*Identification.* Lin. Sp., 1458.; Ait. Hort. Kew., ed. 2., 5. p. 287.
*Synonymes.* *S.* orientàlis, &c., *Tourn. Cor.* 45., *Bux. Cent.* 1. 18.; *S.* áspera *Alp. Ægypt.* ed. 2. 140.
*Engravings.* Bux. Cent., 1. t. 27.; Alp. Ægypt., ed. 2., t. 141.; and our *fig.* 2043.

*Spec. Char., &c.* Stem prickly, angular. Leaves unarmed, cordate, 9-nerved. (*Willd.*) A climbing evergreen shrub. Syria. Height 6 ft. to 12 ft. Introduced in 1739. Flowers greenish white; August and September. Berries red or black; ripe in November.

2043. *S.* excélsa.

Stems 4-cornered, and prickly; mounting to the tops of tall trees, by means of their clasping tendrils. Leaves 2 in. long, and $1\frac{3}{4}$ in. broad at the base, having 5 longitudinal nerves, but no spines on their margins. The roots resemble and possess the same qualities as those of *S.* áspera, but are inferior to those of *S. Sarsaparilla.*

### 3. *S.* RU'BENS *Wats.* The red-*tendriled* Smilax.

*Identification.* Watson Dend. Brit., t. 108.
*Engravings.* Dend. Brit., t. 108.; and our *fig.* 2044.

*Spec. Char., &c.* Stem angular, prickly. Leaves ovate-subcordate, rather

obtuse, mucronate, coriaceous, 5-nerved; margin mucronate-denticulate near the base. (*Wats.*) A handsome evergreen climbing shrub. North America, in woods and by streams. Height 3 ft. to 4 ft. Flowers greenish white; July.

2044. *S. rùbens.*

♃ 4. *S.* SARSAPARI'LLA L. The *medicinal* Smilax, *or* Sarsaparilla.

*Identification.* Lin. Sp., 1459.; Pursh Fl. Amer. Sept., 1. p. 249.
*Synonymes.* *S.* peruviàna *Sarsaparilla* Ger. Emac. 859.; *S.* glaúca *Michx.* 2. p. 237., *Walt. Fl. Car.* 245.; the glaucous-leaved Smilax; Salsa pariglia, *Ital.*
*Derivation.* *Sarsaparilla* is compounded of two Spanish words; viz., *zarza*, red, and *parilla*, a little vine.
*Engravings.* Dend. Brit., t. 111.; and our *fig.* 2045.

2045. *S. Sarsaparilla.*

*Spec. Char., &c.* Stem prickly, angular. Leaves unarmed, ovate-lanceolate, ending in a long sharp point; 5-nerved, glaucous beneath. (*Willd.*) An evergreen climbing shrub. North and South America. Height 3 ft. to 4 ft. Introduced in 1664. Flowers greenish white; August.

Stems shrubby, long, slender, and climbing. Roots divided into several long slender branches, which are somewhat thicker than a goose-quill, straight, brown on their exterior, but white internally, and from 3 ft. to 4 ft. long. Sarsaparilla, on its first introduction, was considered as a specific against numerous disorders, and it is still employed in rheumatic complaints scrofula, and all cutaneous diseases.

♃ 5. *S.* HASTA`TA *Willd.* The Spear-shaped Smilax.

*Identification.* Willd. Sp. Pl., 4. p. 782.; Pursh Fl. Amer. Sept., 1. p. 249.; Lodd. Cat., ed. 1836.
*Synonymes.* *S.* Bòna-nóx *Michx. Fl. Amer.* 2. p. 237.; *S.* áspera var. *Lam. Encyc.*
*Engravings.* Pluk. Alm., t. 111. f. 3.; and our *fig.* 2046.

2046. *S. hastàta.*

*Spec. Char., &c.* Stem subarmed. Leaves lanceolate, acuminate; auriculate, or spear-shaped, at the base; ciliated or prickly on the margin; 3—5 nerves. Berries round. (*Willd.*) An evergreen climbing shrub. Carolina and Florida, on the sea-coast. Height 4 ft. to 5 ft. Introduced in 1820. Flowers green; August and September.

2047. *S. Wátsoni.*

♃ 6. *S.* WA'TSONI Swt. Mr. Watson's Smilax.

*Identification.* Swt. Hort. Brit., 3. p. 681.
*Synonymes.* *S.* longifòlia *Wats. Dend. Brit.*; *S.* h. 2 lanceolàta *Arb. Brit.* 1st edit. p. 2512.
*Engravings.* Wats. Dend. Brit., t. 110.; and our *fig.* 2047.

*Spec. Char., &c.* Stem prickly, angular. Leaves ovate, acuminated, somewhat cordate at the base, glabrous, 3—5-nerved. Berries elliptic. An evergreen climbing shrub. North America. Height 3 ft. to 5 ft. Introduced in 1820, or before. Flowers greenish; August.

♃ 7. *S.* WALTE`RII Pursh. Walter's Smilax.

*Identification.* Pursh Fl. Amer. Sept., 1. p. 249.
*Synonyme.* *S.* China *Walt. Fl. Car.* p. 245.
*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* Stem prickly. Leaves ovate-cordate, smooth, 3-nerved. Berries acuminate. (*Pursh.*) A climbing evergreen shrub. Virginia and

Carolina, on the river sides. Height 3 ft. to 5 ft. Introduced in 1820, or before. Flowers greenish white; August.

2048 S. maculàta.

8. *S.* MACULA'TA *Roxb.* The spotted-*leaved* Smilax.

*Identification.* Roxb.; Royle Ill., p. 384.
*Engravings.* Royle Ill., t. 94., fig. 1.; our *fig.* 2048.

*Spec. Char., &c.* Stem angular, prickly. Leaves cordate, somewhat hastately lanceolate, coriaceous, the under sides of the nerves and petioles prickly. (*G. Don.*) A climbing evergreen shrub. Nepal, 1819. Height 5 ft. to 10 ft. Flowers whitish; August.

## § ii. *Stems prickly, round.*

9. *S.* CHI'NA *L.* The Chinese Smilax.

*Identification.* Lin. Sp. Pl., 1459.; Ait. Hort. Kew., ed. 2., 5. p. 388.
*Synonymes.* Chìna ràdix *Bauh. Pin.* 896.; Smìlax áspera mìnor *Plum. Ic.* 183.; *Sankira*, vulgo *Quaquara*, &c., *Kæmpfer Amœn. Ex.* p. 781.; Cena gentila, *Ital.*
*Engravings.* Blackw., t. 423.; Kæmpf. Amœn., t. 782.; Pluk. Amal., t. 408. f. 1.; and our *fig.* 2049.

*Spec. Char., &c.* Stem round, with a few spines; leaves roundish-ovate, with acute points, 5-nerved. (*Willd.*) An evergreen climbing shrub. China and Japan. Height 20 ft. Introduced in 1759. Flowers greenish white; August. Berries red.

2049. S. Chìna.

The root is very large, fleshy, and reddish: it is used for food, in some parts of China, instead of rice; and is considered extremely nourishing. Brown found it in abundance in Jamaica, where the roots are used to feed hogs. When first brought to England, it was cultivated in the stove: it was afterwards transferred to the green-house; and it has since been found hardy.

2050. S. rotundifòlia.

10. *S.* ROTUNDIFO'LIA *L.* The round-leaved Smilax.

*Identification.* Lin. Sp., 1460.; Pursh Fl. Amer. Sept., 2. p. 250.
*Engraving.* Our *fig.* 2050.

*Spec. Char., &c.* Stem round, somewhat prickly. Leaves roundish-ovate or cordate, very smooth, 5-nerved. Berries spherical. (*Willd.*) A climbing evergreen shrub. North America, from Canada to Carolina. Height 6 ft. Introduced in 1760.

11. *S.* LAURIFO'LIA *L.* The Laurel-leaved Smilax.

*Identification.* Lin. Sp. Pl., 1460.; Pursh Fl. Amer. Sept., 1. p. 250.
*Synonymes.* *S.* áltera, &c., *Plum. Ic.*; *S.* læ'vis, &c., *Catesb. Car.* 1. t. 15.
*Engravings.* Cat. Car., 1. t 15.; Plum. Ic.; and our *fig.* 2051.

*Spec. Char., &c.* Stems round; main stem prickly. Branches unarmed. Leaves coriaceous, elliptic, 3-nerved. Umbels on very short peduncles. (*Willd.*) A very handsome evergreen climbing shrub. North America, in sandy boggy woods, from New Jersey to Georgia. Height 10 ft. to 12 ft. Introduced in 1739. Flowers greenish white; August. Berries black; ripe in September and October.

2051. S. laurifòlia

12. *S.* TAMNÖI'DES *L.* The Black-Bryony-like Smilax.

*Identification.* Lin. Sp. Pl., 1460.; Pursh Fl. Amer. Sept., 1. p. 251.

*Synonyme.* *S. Bryòniæ nìgræ*, &c., *Catesb. Car.* 1. t. 52.
*Engravings.* Cat. Car., 1. t. 53. ; and our *fig.* 2052.

*Spec. Char., &c.* Stem round and prickly. Leaves unarmed, cordate-oblong, 7-nerved. (*Willd.*) A climbing evergreen shrub, rather suffrutescent than woody. Virginia and Carolina, in sandy wet woods and bogs. Introduced in 1739. Flowers greenish white ; June and July. Berries black ; ripe in August and September.

2052. *S. tamnòides.*

♃ 13. *S.* CADU`CA *L.* The deciduous Smilax.

*Identification.* Lin. Sp. Pl., 1460. ; Pursh Fl. Amer. Sept., 1. p. 250.
*Engraving.* Our *fig.* 2053.

*Spec. Char., &c.* Stem round, prickly. Leaves unarmed, ovate, 3-nerved. (*Willd.*) A deciduous climber, with a flexible stem, armed with a few short spines, black at the tip. Carthagena in New Spain, and Canada. Height 30 ft. Introduced in 1759. Flowers greenish white; July. Sparingly produced in British gardens.

2053. *S. cadùca.*

♃ 14. *S.* GLAU`CA *Sims.* The glaucous Smilax.

*Identification.* Sims in Bot. Mag., t. 1846.
*Engravings.* Bot. Mag., t. 1846. ; and our *fig.* 2109. in p. 1110.

*Spec. Char., &c.* Stem round, prickly. Leaves unarmed, rotund-ovate, mucronate, somewhat nerved, glaucous beneath. Peduncles, short, two-flowered. North America. Height 3 ft. Introd. 1815. Flowers greenish white; July.

## § iii. *Stems unarmed, 4-angled.*

♃ 15. *S.* BO`NA-NO`X *L.* The Bona-nox, *or ciliated,* Smilax.

*Identification.* Lin. Sp. Pl., 1460. ; Pursh Fl. Amer. Sept., 1. p. 249.
*Synonymes.* *S. áspera* Indiæ occidentalis *Bauh. Pin.* ; *S.* variegàta *Walt. Fl. Car.* 244.
*Engravings.* Pluk. Phyt., t. 111. f. 1. ; and our *fig.* 2054.

2054. *S. Bòna-nóx.*

*Spec. Char., &c.* Stalks unarmed, angular. Leaves cordate-ovate, with an acute point, ciliated, 7-nerved. (*Willd.*) An evergreen climbing shrub. Carolina and Georgia, in woods. Height 5 ft. to 10 ft. Introduced in 1739. Flowers greenish white; June and July.

Plukenet mentions a variety, which he has figured under the name of *S.* B. caroliniàna *Pluk. Phyt.* t. 111. f. 3.

♃ 16. *S.* LATIFO`LIA *R. Br.* The broad-leaved Smilax.

2056. *S. quadrangulàris.*

*Identification.* Brown Prod., 293. ; Ait. Hort. Kew., ed. 2., 5. p. 390.
*Engraving.* Our *fig.* 2055.

*Spec. Char., &c.* Stem unarmed, angular. Leaves ovate ; base half-heart-shaped or obtuse, glabrous, 5-nerved ; petioles bearing tendrils. (*Brown.*) An evergreen climbing shrub. New Holland. Height 3 ft. to 5 ft. Introduced in 1791.

2055. *S. latifòlia.*

It was first placed in the green-house, but has since been found to stand out at Kew.

♃ 17. *S.* QUADRANGULA`RIS *Muhl.* The four-angled Smilax.

*Identification.* Muhl. in Flora Dan. ; Pursh Fl. Amer. Sept., 1. p. 249.
*Engravings.* Dend. Brit., t. 109. ; and our *fig.* 2056.

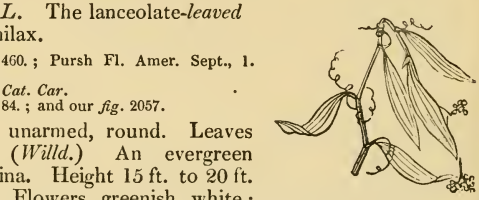
*Spec. Char., &c.* Stem tetragonous. Leaves unarmed, ovate, acute, 5-nerved. (*Willd.*) An evergreen climbing shrub. North America. Height 5 ft. to 10 ft. Introduced in 1812. Flowers pinkish; June and July. Berries black; ripe in September.

### § iv. *Stems unarmed, round.*

18. *S.* LANCEOLA'TA *L.* The lanceolate-*leaved* Smilax.

*Identification.* Lin. Sp. Pl., 1460.; Pursh Fl. Amer. Sept., 1. p. 250.
*Synonyme.* *S.* non-spinòsa, &c., *Cat. Car.*
*Engravings.* Catesb. Car., 2. t. 84.; and our *fig.* 2057.

*Spec. Char., &c.* Stem unarmed, round. Leaves unarmed, lanceolate. (*Willd.*) An evergreen climbing shrub. Carolina. Height 15 ft. to 20 ft. Introduced in 1785. Flowers greenish white; July and August. Berries red; ripe in September.


2057. *S.* lanceolàta.

19. *S.* VIRGINIA'NA *Mill.* The Virginian Smilax.

*Identification.* Mill. Dict., No. 9.; Mart. Mill., No. 20.; Lodd. Cat., ed. 1836
*Engraving.* Pluk. Phyt., t. 110. f. 4.; and our *fig.* 2058

*Spec. Char., &c.* Stem prickly, angular. Leaves lanceolate, unarmed, acuminate. (*Mill.*) An evergreen climbing shrub. Virginia. Height 5 ft. to 10 ft. Introduced in 1800. Flowers greenish white; June and July.

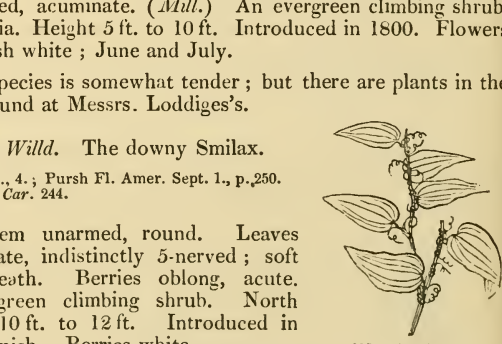
This species is somewhat tender; but there are plants in the open ground at Messrs. Loddiges's.


2058. *S.* virginiàna.

20. *S.* PU'BERA *Willd.* The downy Smilax.

*Identification.* Willd. Sp. Pl., 4.; Pursh Fl. Amer. Sept. 1., p. 250.
*Synonyme.* *S.* pùmila *Walt. Car.* 244.
*Engraving* Our *fig.* 2059.

*Spec. Char., &c.* Stem unarmed, round. Leaves oblong, acute, cordate, indistinctly 5-nerved; soft and pubescent beneath. Berries oblong, acute. (*Willd.*) An evergreen climbing shrub. North America. Height 10 ft. to 12 ft. Introduced in 1806. Flowers greenish. Berries white.


2059. *S.* pùbera.

*Kinds of Smilax which are either not introduced, or of which we have not seen the Plants.*

S. *ovàta* Pursh Fl. Amer. Sept. 1. p. 249. — Stem subarmed; leaves smooth, ovate, 3-nerved, and very shining on both sides; berries black. A native of Georgia, near Savannah; flowering in July.

S. *álba* Pursh l. c. p. 250. — Stem subarmed, slightly angular; leaves 3-nerved, lanceolate, coriaceous, glabrous; berries white. Found by Walter, in sandy ground on the edge of rivulets, in Carolina; flowering in June.

S. *panduràta* Pursh l. c. p. 251. — Stem prickly; leaves ovate, fiddle-shaped, acuminate, 3-nerved; smooth and shining on both sides. Found by Pursh, in sandy woods, from New Jersey to Carolina; flowering in July.

S. *nìgra* W. and S. *catalónica* Poir. are natives of Spain, from which country they were brought to England in 1817. The first is probably a black-berried variety of *S.* áspera.

S. *hórrida* Desf. — A native of North America, introduced in 1820.

S. *Villándsia Ham.*, *S.* macrophýlla *Roxb.*, (Royle Ill. vol. 1. p. 384., and vol. 2. t. 94. fig. 2.; and our *fig.* 2109. in p. 1110.) has elliptical, mucronate, 5-nerved, smooth leaves. Mysore. Not yet introduced.

S. *alpìna* W. — A native of Greece, introduced in 1820.

# Order LXXX. LILIA'CEÆ.

*Ord. Char.* *Perianth* regular, 6-parted. *Stamens* 6, opposite the segments, and inserted in their bases. *Ovarium* free. *Style* 1. *Capsule* 3-celled, 3-valved, with a loculicidal dehiscence. *Seeds* many, generally flat, packed one above another, in one or two ranks; testa spongy or dilated. *Albumen* fleshy. *Embryo* straight, having the radicle next the hilum. (*G. Don.*)

*Leaves* simple, alternate or opposite, stipulate or exstipulate, deciduous or evergreen; with parallel veins. *Flowers* mostly white. — Shrubs mostly evergreen; natives of Europe, Asia, and America.

In British gardens, the only genera which contain hardy ligneous plants are two; which are thus contradistinguished: —

*Ru'scus.* Flowers diœcious. Stamens 5, monadelphous. Style 1. Cells of berry 2-seeded. (*G. Don.*)

*Yu'cca.* Perianth campanulate. Stamens thickest at top. Stigma sessile. Capsule trigonal. Seeds flat. (*G. Don.*)

In our first edition the shrubby species of *Aspáragus* are included, but they are here omitted as not being perfectly hardy.

## Genus I.

### *RU'SCUS L.* The Butcher's Broom. *Lin. Syst.* Diœ'cia Triándria.

*Identification.* Lin. Gen., 534.; Juss., 42.; Fl. Br., 1073.; Tourn., t. 15.; Lam., t. 815.; Gærtn., t. 16.

*Synonymes.* Fragon, *Fr.*; Mäusedorn, *Ger.*; Rusco, *Ital.*

*Derivation.* It is said to have been anciently called Bruscus, from *beux*, box, and *kelem*, holly (*Celtic*), box holly; or from *buxus*, box. Some suppose it to be derived from *russus*, flesh-coloured; alluding to the colour of the fruit. The word *ruscus* was, however, applied to any prickly plant by the ancient Romans, as ruscus sylvestris, the holly, &c.

*Gen. Char.* *Perianth* 6-parted. *Stamens* 6, monadelphous, antheriferous in the male flowers, but naked in the female ones. *Style* 1. *Berry* globose, 3-celled; cells 2-seeded. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, evergreen; alike green on both surfaces. *Flowers* rising from the midribs of the leaves; always diœcious, except in *R.* racemòsus. — Low evergreen shrubs, natives of Europe and Africa.

Though, in a practical point of view, the species in British gardens are treated as evergreen shrubs, yet, in a strict sense, they are biennial plants, like the raspberry and the bramble. They all thrive in sandv soil, and are readily increased by division of the root.

1. *R.* aculea'tus *L.* The prickly, *or common*, Butcher's Broom.

*Identification.* Lin. Sp. Pl., 1474.; Eng. Bot., t. 560.; Eng. Fl., 4. p. 235.; Hook. Br. Fl., p. 431.

*Synonymes.* *R. myrtifòlius aculeàtus Tourn. Inst.*; Box Holly, Knee Holly, wild Myrtle, prickly Pettigree; Houx Frelon, petit Houx Buis piquant, Fragon épineux, Fragon piquant, *Fr.*; Stechender Mäusedorn, *Ger.*; Rusco, *Ital.*

*Engravings.* Eng. Bot., t. 560.; and our *fig.* 2060.

*Spec. Char., &c.* Leaves ovate, sharp-pointed, flowering on the upper side, without a leaflet. (*Smith.*) An evergreen suffrutescent plant. Britain. Height 1 ft. to 3 ft. Flowers greenish white; March and April. Berries scarlet; ripe in the beginning of winter; very ornamental.

*Varieties.*

- R. *a.* 2 *rotundifòlius* Barrel. Ic. 517., Mart. Mill. *R.* vulgàris fòlio amplióre *Dill. Elth.* 333, 334. t. 251. f. 324. — Leaves somewhat larger and rounder than those of the species.
- R. *a.* 3 *láxus* Smith. *R.* láxus *Lodd. Cat.* ed. 1836. — Leaves elliptic,

acute at both ends, branches loose. *R.* flexuòsus *Mill.* No. 6., Professor Martyn thinks, is probably this variety.

The stems do not flower till the second year; after which they die down to the ground, like those of the raspberry, and some species of *S*milax and *A*spáragus. The leaves are a continuation of the branches; equally firm and equally durable, as they never drop off, but die along with the branch, or frond. The roots are thick, fleshy, white, branching at the crown, and afterwards twining about each other, and putting out frequent fibres, like those of the asparagus; oblique, and striking deep into the ground. The female flowers are succeeded by bright red berries, which are almost as large as wild cherries, and of a sweetish taste; having two large orange-coloured seeds in each, gibbous on one side, flat on the other, and extremely hard. The green shoots are cut, bound in bundles, and sold to the butchers for sweeping their blocks; whence the popular English name of butcher's broom. It is also used, in London, by the manufacturers of cigars, &c., for sprinkling the saline liquor over the tobacco leaves. The tender young shoots, in spring, are sometimes gathered and eaten by the poor, both in England and France, like those of asparagus. Planted under trees or shrubs, the *R*úscus aculeàtus will spread into large clumps, especially in loamy soil; and, as it retains its leaves all the winter, it has a good effect as a low undergrowth, more especially as it will live in situations so shady as to be unfit for almost any other plant.

2060. *R.* aculeàtus.

### ✱ 2. *R.* HYPOPHY'LLUM *L.* The under-leaf Ruscus, *or broad-leaved Butcher's Broom.*

*Identification.* Lin. Sp., 1474.; Ait. Hort., ed. 2., 5. p 420.
*Synonymes.* *R.* latifòlius, &c., *Tourn. Inst.* 79.; Laúrus alexandrìna *Lob. Adv.*, *&c.* 509.; Fragon sans Foliole, *Fr.*; breitblättriger Mäusedorn, *Ger.*; Bonifaccia *Ital.*
*Engravings.* Bot. Mag., 2040.; and our *fig.* 2061.

*Spec. Char., &c.* Flowers produced underneath the leaves. (*Willd.*) A low evergreen shrub. Italy and Africa. Height 2 ft. to 3 ft. Introduced in 1683. Flowers whitish; May and June. Berries red, about the size of those of the common juniper; ripe in September and October.

*Variety.*

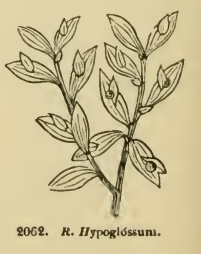
✱ R. *h.* 2 *trifoliàtum.* *R.* trifoliàtus *Mill.* No. 5. —Leaves ovate-acuminate, placed by threes, with flowers on their upper sides. It is a native of Zante, and some other of the Greek islands, where it grows about 2 ft. high.

2061. *R.* hypophyllum.

### ✱ 3. *R.* (H.) *H*YPOGLO'SSUM *L.* The Under-tongue Ruscus, *or double-leaved Butcher's Broom.*

*Identification.* Lin. Sp., 1474.; Ait. Hort. Kew., 5. p. 421.
*Synonymes.* *R.* angustifòlius, &c. *Tourn. Inst.* 79.; *H*ypoglóssum *Lob. Adv.* 284.; Uvulària *Brunf.* 3 96, 97.; Fragon à Foliole, *Fr.*; Zungen Mäusedorn, *Ger.*; Lingua pagana, *Ital.*
*Engravings.* Lob. Adv. lc., 638.; Barrel. lc., 250.; Blackw., t. 128.; and our *fig.* 2062.

*Spec. Char., &c.* Leaves floriferous underneath, with leaflet. (*Willd.*) A low evergreen shrub. Italy, Idria, Hungary; and Africa, about Algiers. Height 8 ft. to 10 ft. Introduced in 1596. Flowers pale yellow; April and May. Berries red, almost as large as those of *R.* aculeàtus; ripening in winter.



2062. *R. H*ypoglóssum.

4. *R.* RACEMO'SUS *L.* The racemose Ruscus, *or Alexandria Laurel.*

*Identification.* Lin. Sp., 1474.; Ait. Hort. Kew., ed. 2., 5. p. 421.
*Synonymes.* *R.* angustifòlius, fructu summis ramulis, &c., *Tourn. Inst.* 79., *Du Ham. Arb.* 4.; Fragon à Grappes, *Fr.*; Trauben Mäusedorn, *Ger.*; Lauro ideo, *Ital.*
*Engravings.* Dend. Brit., t. 145.; our *fig.* 2063. to our usual scale; and *fig.* 2064. of the natural size.

*Spec. Char., &c.* Flowers hermaphrodite, produced at the ends of the branches. (*Willd.*) A low evergreen shrub. Portugal. Height 4 ft. Introduced in 1739. Flowers greenish yellow; May. Berries red, with a round coriaceous white disk at the base; ripening during winter.

2063. *R.* racemòsus.

According to some, this species is supposed to be the plant with which the ancients crowned their victors; but, though the stalks are flexible enough to wreath easily, and the leaves resemble those represented on ancient busts, yet the fruit being terminal, does not agree nearly so well with the fruit represented in the crowns on these busts as that of the *Laúrus nóbilis*, which is axillary, and resembles that shown in the coronal wreaths of classical sculpture.

2064. *R.* racemòsus.

## GENUS II.

*YU'CCA* L. THE YUCCA, *or ADAM'S NEEDLE.* *Lin. Syst.* Hexándria Monogýnia.

*Identification.* Lin. Sp., 456.; Ait. Hort. Kew., ed. 2., 2. 291.; N. Du Ham., 3. 145.
*Derivation.* The name of the plant in Peru.

*Gen. Char.* *Perianth* campanulate, 6-parted, regular. *Stamens* 5, thickest at top. *Anthers* small. *Stigmas* sessile. *Capsule* oblong, bluntly trigonal; 3-celled, 3-valved, many-seeded. *Seeds* flat. (*G. Don.*)

*Leaves* simple, alternate, exstipulate, evergreen; ensiform, pointed. *Flowers* large, white; disposed in spikes or panicles, terminal.—Shrubs evergreen, with the habit of palm trees; natives of North and South America, chiefly on the sea coast.

In British gardens, most of the species are somewhat tender. They prefer a dry and deep sandy soil, or a sandy loam; and they are readily propagated by suckers, which are thrown up by the roots, or by side shoots, which are occasionally produced on the stem. They sometimes ripen seeds, which, if sown immediately after they are gathered, and placed in a moderate hot-bed, will come up in six weeks. In their native countries, their leaves, beated like the stalks of hemp or flax, afford a fibre which may be used like that of those plants, in the manufacture of cloth or cordage; and the stems, macerated in water, deposit a feculent matter, from which starch may be procured. In a floricultural point of view, all the species are highly ornamental; and no lawn or flower border ought to be without some of them. As the yucca grows naturally on the sea shore, it is particularly adapted for marine gardens.

1. *Y.* GLORIO'SA *L.* The glorious Yucca, *or Adam's Needle.*

*Identification.* Lin. Sp., 456.; Ait. Hort. Kew., ed. 2., 2. p. 291.
*Synonymes.* *Y.* canadèna *Ald. Hort. Par.* 33.; *Y.* indica, &c., *Barr. Rar.* 70. t. 1194.; *Y.*, or *Yúcca*, peruàna *Ger. Emac.* 1543.; *Y.* nòva gloriòsa, &c., *Lob. Adv.* 2. p. 507.; the superb Yucca; Yucca nain; Yucca à Feuilles entières, *Fr.*; prächtiger Yukka, *Ger.*
*Engravings.* Bot. Mag., t. 1260.; and our *fig.* 2065.

*Spec. Char., &c.* Leaves entire. (*Willd.*) A low evergreen shrub. Virginia and Carolina. Height 2 ft. to 5 ft., rarely 10 ft. Introduced in 1596. Flowers white ; July and August.

*Variety.*

Y. g. 2 *fòliis variegàtis* Lodd. Cat. ed. 1836.—Leaves variegated.

The leaves are broad and stiff, but thin : they are of a very dark green, and end in a sharp black spine. The flower-stalk is generally about 3 ft. high, branching out on every side to a considerable distance ; but the flowers are very wide asunder on the stalk. Sometimes the panicles of flowers spring at once from the centre of the leaves, without the intervention of a stalk. The flowers are bell-shaped, and hang downwards ; and each petal is white within, but is marked with a purple stripe on the outside. They are scentless, and are seldom succeeded by seeds in England. The fibres of the leaves are used by the Indians to make a kind of cloth, and also cords, which they use to fasten their houses together, and to make their swing beds, called hammocks. At Carthagena, a starch, or rather glue, is made from the stem, which may be eaten or made into paste.

2065. *Y. gloriòsa.*

2. *Y.* (G.) SUPE'RBA. The superb Yucca.

*Identification.* Haworth Suppl., Plant. Suec., p. 35. ; Bot. Reg., 1698.
*Synonyme.* *Y.* gloriòsa *And. Bot. Rep.* t. 473.
*Engravings.* Bot. Rep., t. 473. ; Bot. Reg., t. 1698. ; and our *fig.* 2066.

*Spec. Char., &c.* Stem arborescent. Leaves sword-shaped and plaited, with a very strong spine. Flowers ovate, bell-shaped, and drooping ; pure white. (*And.*) A low evergreen shrub, resembling the preceding species, but rather larger in all its parts.

2066. *Y.* (g.) supérba

3. *Y.* ALOÏFO'LIA *L.* The Aloe-leaved Yucca, *or Adam's Needle.*

*Identification.* Lin. Sp., 457. ; Ait. Hort. Kew., ed 2., 2. p. 291,
*Synonymes.* *Y.* arboréscens, &c., *Dill. Elth.* 435. ; *Y.* caulèscens *Michx. Fl. Bor. Amer.* 5. p. 196.
*Engravings.* Dil. Elth., t. 323. f. 416. ; Bot. Mag., t. 1700. ; and our *fig.* 2067.

*Spec. Char., &c.* Leaves crenulate, stiff. (*Willd.*) A low tree, with the habit of a palm. South America. Height 10 ft. to 12 ft. Introduced in 1696. Flowers white ; August and September.

*Variety*

Y. a. 2 *péndula* Cat. Hort. Par. p. 24.—Leaves pendent.

This species has a thick tough stem or trunk, crowned with a head or tuft of stiff narrow light green leaves, the edges of which are slightly serrated, and the points ending in sharp, strong, very hard spines. The flower-stalk rises from the centre of the leaves, and is 2 or 3 feet high, branching out so as to form a pyramid. The flowers grow close to the branches, and form a regular spike : they are purplish without and white within. When the flowers

2067. *Y.* aloïfòlia.

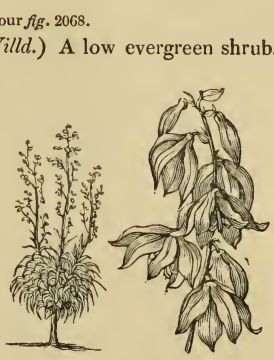
have dropped, the head from which they sprang dies; but, generally, one or two young heads come out from the side of the stalk, below the old head. Rather more tender than *Y.* gloriòsa.

4. *Y.* DRACO'NIS *L.* The Dragon Yucca, *or drooping-leaved Adam's Needle.*

*Identification.* Lin. Sp., 457.; Ait. Hort. Kew., ed. 2., 2. p. 291.
*Synonyme.* Dracòni árbori, &c., *Bauh. Pin.* 506.
*Engravings.* Dill. Elth., 324. 117.; Bot. Reg., t. 1894.; and our *fig.* 2068.

*Spec. Char., &c.* Leaves crenated, nodding. (*Willd.*) A low evergreen shrub. South Carolina. Height 3 ft. to 4 ft.; sometimes 6 ft. Introduced in 1732. Flowers white; October and November.

Leaves narrow, dark green, hanging down, serrated, and ending in acute spines. Flowers pendulous, milk-white, with a strong unpleasant smell. One of the most stately species of the genus, conveying no bad idea of a palm tree. The great peculiarity by which it appears to be distinguished is, the spreading of the flowers, the segments of which, instead of remaining closed in a globose manner, as in most of the other species, expand till they diverge from the flower-stalk nearly at a right angle.



2068. *Y.* dracònis.

5. *Y.* STRI'CTA *Sims.* The upright Yucca, *or Lyon's narrow leaved Adam's Needle.*

*Identification.* Sims in Bot. Mag., t. 2222.
*Engravings.* Bot. Mag., t. 2222.; and our *fig.* 2069.

*Spec. Char., &c.* With a stem. Leaves linear-lanceolate, very stiff; elongated at the apex. Flower stem branched at the base; branches simple. Flowers orbiculate, bell-shaped. (*Sims.*) An evergreen shrub. Carolina. Height 4 ft. to 5 ft. Introduced in 1817. Flowers large, greenish white, with a purplish tinge; July and August.

The leaves are very long, straight, and tapering to a long point, with a very few scattered threads on the margin. They are of a deep green edged with yellow, and rigid in texture.

2069. *Y.* strícta.

6. *Y.* RECURVIFO'LIA *Salisb.* The recurved-leaved Yucca.

*Identification.* Salisb. in Parad. Lond., 31.; Pursh Fl. Amer. Sept., 1. p. 228.
*Synonyme.* *Y.* recúrva *Hort.*
*Engraving.* Our *fig.* . in p. .

*Spec. Char., &c.* With a stem. Leaves linear lanceolate; green, recurved, deflexed, slightly thready on the margin. Petals broad in the interior. (*Salisb.*) An evergreen shrub. Georgia, on sandy shores. Height 2 ft. to 3 ft. Introduced in 1794. Flowers greenish yellow, with a tinge of purple; July, August, and September.

7. *Y.* FILAMENTO'SA. The filamentose Yucca, *or thready Adam's Needle.*

*Identification.* Lin. Sp., 457.; Ait. Hort Kew., ed. 2., 2. p. 291.
*Synonymes.* *Y.* fòliis filamentòsis *Moris. Hist.* 2. 419.; *Y.* virginiàna, &c., *Pluk. Alm.* 396.
*Engravings.* Bot. Mag., t. 900.; and our *fig.* 2070.

*Spec. Char., &c.* Leaves serrated and thready. (*Willd.*) A low evergreen shrub, with the habit of a herbaceous plant. Virginia. Height of the leaves 6 in. to 12 in.; of the flower stem 3 ft. to 5 ft. Introduced in 1675. Flowers large, white; September and October.

The flowers are larger and whiter than those of *Y.* gloriòsa, and sit close

to the stalk. On the sides of the leaves are long threads, which hang down. It is perfectly hardy.

2070. *Y.* filamentòsa.

2071. *Y.* (f.) angustifòlia.

* 8. *Y.* (F.) ANGUSTIFO'LIA *Pursh.* The narrow-leaved Yucca.

*Identification.* Pursh Fl. Amer. Sept., l. p. 227.; Nuttall Gen. Pl. Amer., l. p. 218.
*Engravings.* Bot. Mag., t. 2236.; and our *fig.* 2071.

*Spec. Char., &c.* Without a stem. Leaves long-linear, rigid; margin slightly filamentose. Capsules large, obovate-cylindrical. (*Pursh.*) A low evergreen shrub, with the habit of a herbaceous plant. Banks of the Missouri River. Height of the leaves 6 in. to 12 in.; of the stem 3 ft. to 5 ft. Introd. 1811. Flowers greenish white, without any tinge of purple; September.

This species has been sometimes confounded with *Y.* stricta; but the leaves are narrower and more recurved, and the threads on the margin much longer. The whole plant is of humbler growth; the flower stem is not branched, and the flowers are more oblong than round.

* 9. *Y.* FLA'CCIDA *Haw.* The flaccid-*leaved* Yucca.

*Identification.* Haw. Supp., p. 35.; Lindl. in Bot. Reg., vol. xxii., under *Y.* dracònis.
*Engravings.* Bot. Reg.; and our *fig.* 2072.

2072. *Y.* flaccida.

*Spec. Char., &c.* Leaves all very flaccid, weak, bent below the middle and recurved, very long and lanceolate, flat, concave and mucronulate at the apex, roughish; marginal filaments strong, yellowish. (*Haworth.*) A low evergreen shrub. Georgia. Height of the leaves 1 ft. to 2 ft.; of the flower stems 3 ft. to 5 ft. Introduced in 1816. Flowers pale yellow; July.

A pretty and apparently distinct species, well marked by its thread-edged scabrous leaves and pale yellowish white flowers.

* 10. *Y.* GLAUCE'SCENS *Haw.* The glaucescent Yucca.

*Identification.* Haw. Supp. Pl. Suc., p. 35.
*Engravings.* Brit. Flow.-Gard., t. 53.; and our *fig.* 2073.

*Spec. Char., &c.* Leaves linear-lanceolate, entire, concave, glaucescent, straight; margin slightly filamentose. (*Swt.*) An evergreen stemless plant. North America. Height of the flower-stems 3 ft. to 5 ft. Introd. 1819. Flowers greenish white, tinged with yellow; Aug. and September.

Leaves very stiff, concave, of a dull glaucous colour, terminating in a sharp horny spine; margin entire, with here and there a slender white thread, slightly twisted. It has the habit of *Y.* filamentòsa, with larger and more numerous blossoms, and more elegant sharp-pointed foliage.

2073. *Y.* glaucéscens.

# SUPPLEMENTARY FIGURES
## REFERRED TO IN THE TEXT.

2074. *Ceanòthus thyrsiflòrus.*

2075. *Ulex (e.) strícta.*

2076. *Genísta umbellàta.*

2077. *Cýtisus cíliàtus.*

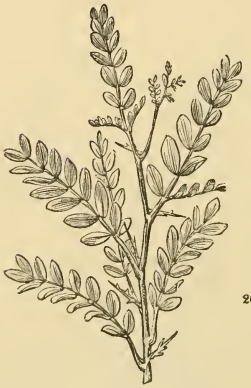
2078. *Cýtisus hirsùtus.*

2079. *Cýtisus polýtrichus.*

2080. *Robínia dùbia.*

2081. Halimodéndron argénteum subviréscens.

2082 Gleditschia triacánthos brachycárpa.



2083. Gled tschia (sinénsis) ferox

2084. Prunus (m.) pubéscens.

2085. Spiræ'a vickowiensis.

2086. Spiræ'a laxiflora.

2087. Rosa sanguineorbæfolia.

2088. Pyrus dioica.

2089. Pyrus astracanica.

2090. *Pyrus* (*Sórbus*) microcárpa.

2091 Aràlia japonica.

2092. *Ribes* albinérvum.

2093. Clèthra (a.) scàbra.

2094. *B*upleùrum gibraltáricum.

2095. *B*umélia oblongifólia

2096. *R*hododéndron máximum purpùreum.

2097. *R.* (A. c.) canéscens.

2098. *F*ráxinus (p.) argénteæ.

2099. *Fráxinus pállida.*

2100. *Fráxinus* (a.) *carolinìana.*

2101 *Phillyrea* (m.) péndula.

2102. *Lycium Trewiànum.*

2103. *Quércus myrtifòlia.*

2103. *Quércus myrtifòlia.*

2101. *Quércus rigida.*

2105. *Táxus canadénsis*

2106. *Táxus canadénsis.*

2107. *Juníperus squamòsa.*

2108. *Thùja plicàta.*

2109. *Smìlax Villándsia.*

# SUPPLEMENTARY SPECIES AND VARIETIES,

## WITH CORRECTIONS.

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In the following List we have omitted a number of garden names, as of doubtful application; and we have given few or no descriptions, because most of the plants are just raised from seed, or introduced from abroad. A similar list to the present has been given in the *Gardener's Magazine* every year since the publication of the large edition of the *Arboretum*, and will continue to be given yearly, so that, by referring to that work, the latest introductions of hardy woody plants may always be ascertained.

### *Ranuncula'ceæ*: *Clemati'deæ*. Page 2.

♀ *Cle'matis califórnica* Gard. Mag. 1841, p. 13., is a very doubtful species, said to resemble *C.* flórida.

♀ *Atra'gene macropétala* Ledebour MS. G. M. 1840, p. 631. A native of Siberia, resembling *A.* alpìna, and probably only a variety of it.

Several suffruticose species of *C*lématis are described in Torrey and Gray's *Flora of North America*, which remain to be introduced.

### Wintera'ceæ. Page 20.

♀ *Illi'cium religiòsum* Sieb.? The Skimi of the Japanese. Probably a variety of I. *a*nisàtum, with which the Japanese ornament their temples. (*G. M.* 1842, p. 13.)

### Magnolia'ceæ. Page 21.

♀ *Magno'lia grandiflòra* var. *Hárwicus* Hort. Said to be raised between M. grandiflòra exoniénsis and M. fuscàta, and to be quite hardy. (*G. M.* 1842, p. 13.)

♀ *M. purpùrea* var. *hýbrida* Hort. A dwarf variety, well adapted for a wall in a small garden. (*G. M.* 1842, p. 13.)

### *Berbera'ceæ*. Page 41.

Several species of *Bérberis* and Mahòn*ia* have lately been raised from Himalayan seeds in the Horticultural Society's Garden, to which names cannot yet be given with certainty; but the following, chiefly raised since the printing of this work was commenced, are considered true to their names:—

♀ Be'rberis *vulgàris fol. purpùreis* Hort. This is a very ornamental plant, with leaves as dark as those of the purple hazel. Lawson's Nursery, Edinburgh.

♀ *Maho'nia pállida*. (*Bérberis* pállida *Hartw.* Benth. Plant. Hart. p. 34. No. 268.) Resembles M. *A*quifòlium, but the leaflets are smaller, less spiny, and from 11 to 15 in number. Flowers whitish; hence the specific name. Found in Mexico, where it grows from 6 ft. to 8 ft. high. (*G. M.* 1840, p. 631.)

♀ *M. grácilis*. (*B.* grácilis *Hartw.* Benth. Pl. Hart. No. 271.) Pinnate, with 4 pairs of leaflets, slightly toothed. Mexico, where it grows about 6 ft. high. (*G. M.* 1840, p. 631.)

♀ *M. trifoliàta*. (*B.* trifoliàta *Hartw.* Bot. Reg. Chron. 149. 1841.) Trifoliate, with small yellowish green prickly folioles, and fruit of a yellowish green when ripe. Mexico, and about as hardy as M. fasciculàris. (*G. M.* 1840, p. 631.)

The following species will probably be very shortly introduced, and, indeed, are perhaps already in a seedling state in the H. S. Garden :—

* *M. lanceolàtum.* (*B.* lanceolàtum *Benth.* Pl. Hart. p. 34. No. 269.) Pinnate, with long slender leaves, and 13—17 leaflets, very spiny, and of a dark green. Mexico, on mountains, where it grows from 5 ft. to 6 ft. high. Considered the handsomest of all the Mexican species. (*G. M.* 1840, p. 632.)
* *M. angustifòlia.* (*B.* angustifòlia *Hartw.* Benth. Pl. Hart. No. 270.) Resembles M. fasciculàris, but is much smaller in all its parts. Leaflets 5—7, light green, and very spiny. Mexico, where it grows from 6 ft. to 8 ft. high, with purple fruit, sweet to eat.
* *M. Hartwègii.* (*B.* Hartwègii Benth. Pl. Hart. No. 272.) Pinnate, with 11—15 leaflets, which are nearly double the size of those of M. *A*quifòlium, and of the same light green as those of that species. Mexico. Flowering in April.

AURANTIA'CEÆ. *Arb. Brit.*, 1st ed., vol. i. p. 395.

* LIMO'NIA *Laurèola* Wall. Pl. As. Rar. t. 245., Royle Illust. vol. i. p. 343. The only species of this order found on the tops of cold and lofty mountains in the Himalayas, where it is for some months buried under snow. Raised in the H. S. Garden from seeds received from Dr. Royle in 1841, and probably hardy enough to endure our winters against a wall. (*G. M.* 1841, p. 608.)

*HYPERICA'CEÆ.* Page 74.

* HYPE'*RICUM rosmarinifòlium* Lam. Dict.; Tor. and Gray, vol. i. p. 159. A pretty narrow-leaved species, from Kentucky, where it grows 2 ft. high, flowering in July and August. (*G. M.* 1842, p. 13.)

*A*CERA'CEÆ. Page 78.

† A'*CER lævigàtum* Wall. Plant. As. Rar. 2. p. 3. t. 104.; Arb. Brit. 1st ed. p. 431. Leaves undivided, oblong, acuminate, smooth, and shining. Nepal, on high mountains, where it forms a tree 40 ft. high. Dr. Wallich thinks it may prove hardy in England. H. S. (*G. M.* 1840, p. 632.)
† A. *cólchicum* Hartwiss. A very handsome and distinct plant, nearly allied to *A. p*latanòides Lobèli*i;* but with the lobes of the leaves more pointed, the bottom lobes lapping over the footstalk, their texture thinner, and their colour more glaucous than those of *A. p.* Lobèli*i.* Abchasien; whence it was imported by Booth of Hamburg in 1838, and introduced into England in 1840. (*G. M.* 1840, p. 632.)
† A. *cólchicum* var. *rùbrum* Booth MS. From the beginning of the season till late in autumn the leaves are of a bright pinkish purple. The bark is brownish, while that of the species is of a pea-green, like the bark of *Negúndo f*raxinifòlia.
† A. *campéstre.* Add as Varieties:—"A. *c. rùbris* Booth: samaras red. A. *c. heterocárpum:* samaras variously formed."
† A. *glàbrum* Torr. and Gr. Flor. 1. p. 207. A shrub found in the Rocky Mountains, with leaves nearly similar to those of the common currant in size and shape. Not yet introduced.
† A. *tripartìtum* Nutt. Torr. and Gr. Flora, 1. p. 247. A shrub found on the Rocky Mountains, nearly allied to the preceding species, and, like it, not yet introduced.
† A. *grandidentàtum* Nutt. Torr. and Gr. Flora, 1. p. 247. (*? A.* barbàtum *Dougl.*, not of Michx.) A shrub or low tree from the Rocky Mountains, with leaves smaller than those of *A.* saccharinum. Not yet introduced.

ÆSCULA'CEÆ. Page 123.

Æ'SCULUS (*H.*) *rubicúnda*, p. 126., was thus originated. M. Michaux received, in 1812, seeds of Pàvia from North America, which were sown by M. Camuzet in the Paris Garden; and amongst the plants which came up was one different from all the others, which is the *Æ.* rubicúnda of British Gardens. It flowered in three years, that is, in 1815. (*Hort. Belge*, 1836, p. 97.)

CAPPARIDA'CEÆ. *Arb. Brit.*, 1st ed., vol. i. p. 313.

ISO'MERIS *arbòrea* Nutt. Torr. and Gr. Flora, 1. p. 124.; Bot. Mag. n. ser. t. 3842. A low tree from California, with a long taproot, and a very spreading head. The stem is about the thickness of a man's arm, very knotty, and the wood hard and yellow. Leaves 3-foliolate, lanceolate, mucronulate, glabrous. Flowers large, yellow, in terminal racemes. H. S. (*G. M.* 1842, p. 13.)

VITA'CEÆ. Page 135.

VI'TIS *parvifòlia* Royle's Illust. p. 145. A very curious species of vine, from elevated situations in the Himalayas, with exceedingly small leaves for the family to which it belongs. Tooting Nursery. (*G. M.* 1842, p. 13.)

V. *heterophýlla* Sieb.? A beautiful and very desirable climber, from Japan, with variegated leaves. Probably the *V*ìtis heterophýlla of Thunberg, a native of Java. Mr. Gordon thinks it is nearly related to *C*issus antárctica, but with the leaves much more jagged and variegated with white. It produces small blue fruit in clusters, which are very ornamental. Tooting Nursery. (*G. M.* 1842, p. 13.)

AQUIFOLIA'CEÆ. Page 155.

I'LEX *Aquifòlium.* Add as a Variety:—"I. A. *péndulum.* A very remarkable variety, with shoots as decidedly pendulous as those of *Sophòra* japónica péndula. The original tree is in a private garden in Derby, from which it has been propagated by Mr. Barron at Elvaston Castle.

I. Peràdo, p. 161. Plants raised from seeds of this species in the Edinburgh Botanic Garden resemble so much, in all respects, those of the common holly, as to leave no doubt in our mind as to their being one and the same species. (*G. M.* 1842.)

I. *latifòlia* Hort. (? *I.* laurifòlia *Hort.*) A splendid hardy evergreen shrub from Japan. Leaves large, oval, sometimes 9 in. long. Introduced from the Continent in 1841, and quite hardy. (*G. M.* 1842, p. 13.)

RHAMNA'CEÆ. Page 166.

CEANO'THUS *velutìnus*, p. 181., is now introduced. C. *a.* 2 *intermèdius*, Mr. Gordon considers should be C. *a.* 2 var. *pállidus*.

RHA'MNUS *Wicklius* Jacquin. Resembles *R.* infectòrius, but has larger leaves. It was raised in 1839 in the H. S. Garden, from seeds received from Dr. Fischer, and is quite hardy.

R. *prunifòlius* Booth (not of Smith, p. 178.). A low shrub from North America which has not yet flowered.

ANACARDIA'CEÆ. Page 184.

DUVAU'A *longifòlia* Hort. Raised in 1839 in the Clapton Nursery, from seeds received from Chili. It is very distinct, with long bright green leaves, and it is hardier than any other species of the genus. (*G. M.* 1840, p. 632.)

LEGUMINO'SÆ. Page 194.

SOPHO'RA [? *japónica*] *grandiflòra* Hort. Introduced from the Continent in 1841, but whether hardy or not is uncertain. (*G. M.* 1842, p. 13.)

S. *japónica pubéscens* Booth. A variety with the leaves rather more pubescent than those of the species.

GENI'STA *thyrsiflòra* Booth. A shrub growing to the height of 4 ft., prolific in large bunches of yellow flowers, raised from seeds received from the South of Europe. In all probability already described under some other name.

*INDIGO'FERA nepalénsis* Hort. A free-growing shrub, apparently hardy. This is probably a garden name applied to one of the numerous species of Indigófera from the North of India, where they abound. There is frequently one species raised from these seeds which is much hardier than the others, with rather large bright rosy pink flowers, which stood last winter without any protection in an open border; and Dr. Royle says that there are many which grow very high up the hills, which should be quite hardy in England. (*G. M.* 1842, p. 17.)

CARAGA'NA *Gerardiàna Royle Illust.* vol. i. p. 198. t. 34. fig. 1. The Tartaric Furze of travellers. A very distinct species, having all the leaves terminated by a spine, in the manner of *A*strágalus *T*ragacántha (p. 246.). It grows on the Himalayan Mountains, at an elevation of 16,000 ft., and is quite hardy in British gardens. H. S. in 1839. (*G. M.* 1840, p. 633.)

ASTRA'GALUS *fruticòsus* Dec. An under-shrub from Siberia, smooth, and scarcely ligneous; fit only for rockwork or to be kept in pots, as the moisture of autumn and winter soon destroys it. Raised in the H. S. Garden in 1839, from seeds received from Baron Jacquin. (*G. M.* 1840, p. 633.)

A. *viminéus* Dec. A pretty little shrubby species from Siberia, rather difficult to keep, except in pots or on rockwork. Hammersmith Nursery in 1839. (*G. M.* 1840, p. 633.)

*R*OSA'CEÆ. Page 261.

AMY'GDALUS *Pallàsii Ledebour.* (*A.* pedunculàta *Pallas.*) A very pretty decumbent under-shrub, quite hardy. H. S. in 1839, or before. (*G. M.* 1840, p. 633.)

PRU'NUS Mùme *Sieb.* The dwarf or creeping Plum of the Japanese. It bears yellow fruit, which the Japanese pickle as we do cucumbers or walnuts. There are many varieties. Tooting Nursery in 1841. (*G. M.* 1842, p. 18.)

CE'RASUS *Laurocérasus* var. *cólchica* and C. *L.* var. Emerélli (?) are varieties of the common laurel, received from Belgium in 1841. Tooting Nursery. (*G. M.* 1842, p. 14.)

SPIRÆ'A *fissa* Lindl. Bot. Reg. Misc. No. 170. 1840. A beautiful species resembling *S. a*riæfòlia, introduced from Mexico, where it was found by Hartweg, growing from 15 ft. to 20 ft. high. It is expected to be quite hardy. H. S. in 1839. (*G. M.* 1840, p. 633.)

S. *lanceolàta* Poir. Dict. 7. 353., Cambess. in Ann. Soc. Nat. 1. 366. t. 25. (*S.* Reeves*iàna* Hort.) Resembles *S.* bélla, but differs from it in having lanceolate, lobed, and serrated leaves, nearly evergreen. Introduced from Japan by John Reeves, Esq. Knight's Exotic Nursery, 1839. (*G M.* 1840, p. 633.)

S. *rotundifòlia* Lindl. Bot. Reg. Miscel. No. 159. 1840. Resembles *S*

cuneifolia (p. 305.), but differs from it in the leaves being quite round and large. Raised in 1839, in the H. S. Garden, from seeds received from Cashmere. (*G. M.* 1840, p. 633.)

Several species of ligneous *Spiræ*'a are described by Torrey and Gray which are not yet introduced.

ϒ *NUTTA'LLIA cerasifórmis* Torr. and Gray. A tree with the habit of *Amelánchier* canadénsis found in the margins of pine woods in the back part of N. California, but not yet introduced.

ϒ R*U'BUS lasiocárpus* Royle Illust. (p. 203.) A free-growing hardy species from the Himalayas, which bears a grateful fruit. Considered by Mr. Gordon as a synonyme to *R.* micránthus, p. 312. Tooting Nursery. (*G. M.* 1842, p. 14.)

ϒ R. *trílobus* Dec. Prod. 2. p. 566. An erect shrub from Mexico, with large white flowers and purple fruit. Raised in 1841 from seeds sent home by Hartweg. H. S. (*G. M.* 1841, p. 609.)

ϒ C*RATÆ'GUS* O*xyácantha oxyphýlla* is the name given to a pendulous variety of the common hawthorn found in a bed of seedlings at Somerford Hall, and mentioned in p. 376.

ϒ C. O. *frúctu coccíneo* Hort. A variety with large scarlet fruit, of which there are plants in Backhouse's Nursery, York.

ϒ C. P*yracántha frúctu álbo* Hort. A variety with white fruit. Tooting Nursery.

The following species are described in Torrey and Gray's *Flora*, but none of them are yet introduced :—

ϒ C. *rivulàris* Torr. et Gray. Arborescent, and nearly glabrous, with leaves about as entire as those of the apple.

ϒ C. *coccínea* var. *víridis*, C. *c.* var. p*opulifòlia*, C. *c.* var. *oligándra* (few-anthered), and C. *c.* var. *móllis*.

ϒ C. *arboréscens* Torr. et Gray. Unarmed, with lanceolate leaves resembling those of *C.* pyrifòlia. A tree 20 ft. to 30 ft. high in Georgia

ϒ C. *æstivàlis* Torr. et Gray. (*C.* opàca Hook.) A tree 20 or 30 feet high in South Carolina and Georgia.

ϒ C. berberi*fòlia* Torr. et Gray. A tree found in Louisiana, which grows from 20 ft. to 25 ft. high.

Besides these, there are several doubtful species.

ϒ *COTONEA'STER bacillàris* Wall. ined. Lindl. Bot. Reg. No. 1229. Deciduous. Leaves obovate, drawn down into the petiole, glabrous. Cymes many-flowered. H. S. in 1841. (*G. M.* 1841, p. 608.)

ϒ *C. nummulària*, p. 409. Omit "Eriobótrya ellíptica *Lindl.*," as a Synonyme.

ϒ AMELA'NCHIER *canadénsis* Torr. et Gray. All the American kinds in British gardens are considered by Drs. Torrey and Gray as varieties of one species, in which opinion we concur, as indicated in the body of the work, both in this and in the large addition.

ϒ A. (*v.*) *ovàlis* 2 *subcordàta*, p. 416. Add as a Synonyme: "Petromèles ovàlis subcordàta *Jacquin*." (*G. M.* 1840, p. 634.)

ϒ PY'*RUS heterophýlla* Booth. Leaves 3—5-lobed, about the size and shape of those of the common hawthorn, but finely serrated in the edges, and glabrous. A native of Dalmatia. H. S. (*G. M.* 1840, p. 634.)

PHILADELPHA'CEÆ. Page 460.

ϒ P*HILADE'LPHUS mexicànus* Benth. Pl. Hartw. p. 61. No. 458., Bot. Reg. Chron. No. 118. 1841. Resembles *P.* láxus; but the leaves are nearly entire, and rather smaller. It is hardy, and forms a graceful little bush.

GROSSULA'CEÆ. Page 468.

RIBES *taúricum* Jacquin is apparently a variety of *R.* petræ'um, p. 478.

*ARALIA'CEÆ.*

HEDERA Hèlix. Add: "H. H. var. *taúrica* Booth. A distinct variety, with very small dark green leaves. (*G. M.* 1842.)"

*CORNA'CEÆ.* Page 501.

CO'RNUS *grándis* Benth. Pl. Hartw. p. 38. No. 298. Resembles *C.* sericea; but it forms a small tree in Mexico, with leaves 3—5 in. long, smooth, and deep green above and hoary beneath. The flowers are in small heads, and the fruit about the size of the sloe, and purplish black. H. S. (*G. M.* 1840, p. 634.)

C. *macrophýlla* Wall. A beautiful sub-evergreen shrub or small tree from the Himalayas, found growing on similar heights with Benthàmia fragífera. Leaves 6 in. long, and 2½ in. broad. H. S. (*G. M.* 1840, p. 634.)

SAMBU'CEÆ. Page 513.

VIBU'RNUM Awafùki *Sieb.*? (? *V.* japónicum *Hort.*) Leaves opposite, shining, ovate, somewhat waved on the margin. A beautiful evergreen, which, it is expected, will prove quite hardy. Easily propagated by cuttings at any season. Tooting Nursery. (*G. M.* 1842, p. 14.)

V. *sinénse* Zeyh. Leaves ovate, acuminate, subdentate, opposite; margins subreflexed. A hardy evergreen, easily propagated by cuttings at any season. (*Ibid.*)

V. Mullàha *Ham.* Royle Illust. p. 236. (*V.* stellulàtum *Wall.*) Leaves rotund, subrugose, blunty dentate, woolly beneath. A shrub from elevated situations in the Himalayas, where the fruit is eaten. Nearly allied to *V.* cotinifòlia *D. Don.* A very desirable species, and very likely to prove quite hardy. (*Ibid.*)

V. *pygmæ'a* Royle. Leaves opposite, trilobate, subserrate. A very curious dwarf deciduous shrub, from 1 ft. to 1 ft. 6 in. in height; native of the Himalayas. A most desirable plant to represent the section O'pulus in a miniature arboretum. Raised in the Tooting Nursery, from seeds received from Dr. Royle. Quite hardy. (*Ibid.*)

LONICE'REÆ. Page 525.

LONI'CERA *ciliòsa* Poir. Mr. Gordon suspects this to be only a variety of L. (p.) Douglàsii. p. 530., with leaves ciliose, and the flowers not quite so bright.

*ERICA'CEÆ.* Page 555.

ANDRO'MEDA rosmarinifòlia, p. 561., is only a large-leaved variety of A. polifòlia, but rather distinct.

ARCTOSTA'PHYLOS *púngens* H. et B. Nov. Gen. vol. iii. p. 278. t. 259. A singular species, with small greyish entire lanceolate leaves; prostrate and quite hardy. Mexico. H. S. (*G. M.* 1840, p. 634.)

A. *nítida* Benth. Plantæ Hartweg. No. 483. An erect evergreen shrub, with oblong lanceolate acute leaves, smooth on both sides and shining above. Mexico, on the Carmen Mountains.

PERNE'TTYA *angustifòlia* Lindl. Bot. Reg. t. 63. 1840. (P. phillyreæfòlia *Hort.*) Leaves longer and narrower than those of the other introduced species. A very pretty evergreen from Chili. (*G. M.* 1840, p. 634.)

OLEA'CEÆ. Page 628.

LIGU'STRUM *nepalénse*, p. 631. Add as a Synonyme: "*L.* vestìtum *Wall. Cat.* No. 6304."

Syri'nga Emòdi, p. 638. Add as a Synonyme: "*S.* índica *Wall.*"

Jasmi'num *revolùtum*, p. 655. For the Synonyme "*J.* chrysánthemum," read "*J.* chrysánthum;" and add "Wall." to the Identification.

*Polygona'ceæ.* Page 677.

Poly'gonum *volcánicum* Benth. Pl. Hartw. No. 562. Suffruticose, with thick fleshy leaves, and flowers often solitary. Mexico, on the Carmen Mountains. H. S. (*G. M.* 1841, p. 609.)

*Asclepiada'ceæ.* Page 658.

Morre'nia *odoràta* Lindl. This curious plant has proved as hardy as the Physiánthus álbens, which it greatly resembles; but differs in having much larger cordate leaves, and smaller flowers, as well as in the botanical structure. The flowers are white, sweet-scented, and solitary. (*G. M.* 1840, p. 635.)

*Solana'ceæ.* Page 663.

*Fabia'na imbricàta* R. et P. Lindl. Bot. Reg. 1839, t. 59. A small bright green shrub, with the habit of a tamarisk, or rather of a thuja; and when in flower loaded with snow-white blossoms, resembling those of a peach. Chili, in 1838. It has proved hardy in several collections last winter, and will make a great addition to the hardy heath border.

*Thymela'ceæ.* Page 686.

Da'phne *Aucklándii Lindl.* Allied to *D.* alpìna. A fine evergreen species from the Himalayas, where it is found at an elevation of 12,000 ft., near the limits of perpetual snow. H. S. (*G. M.* 1840, p. 635.)

*Elæagna'ceæ.* Page 696.

Elæa'gnus *parvifòlia* Royle Illust. p. 323. t. 81. fig. 1. A very distinct species, with small round leaves, from the Himalayas, and quite hardy.

*Ulma'ceæ.* Page 714.

*Spo'nia canéscens* H. et B. (*Céltis* canéscens *H. et B.*) Raised in 1840, in the H. S. Garden, from Mexican seeds, and bearing a close resemblance to *C.* austràlis (*G. M.* 1840, p. 635.)

*Salica'ceæ.* Page 744.

Po'pulus *canadénsis*, p. 824. A much more spreading and picturesque species than *P.* monilífera. (See *G. M.* 1842, p. 35.)

*Betula'ceæ.* Page 831.

A'lnus *denticulàta* Fischer. A tree of vigorous and rapid growth, and large dentate leaves; a native of Russia. (*G. M.* 1842.)

Be'tula *móllis* Lindl. Bot. Reg. Mis. No. 169. 1840. Raised in the H. S. Garden from Himalayan seeds, and remarkable for the softness of its leaves, which are roundly heart-shaped. Allied to *B.* álba pubéscens. p. 838.

*Coryla'ceæ.* Page 845.

Que'rcus *Ilex* Ballòta, p. 882. Plants raised in the H. S. Garden, from acorns procured from the original tree at Paris, prove it to be identical with *Q.* gramúntia.

Q. *lanàta*, p. 888. Add to the Synonymes: "*Q.* nepaléns."

To the Mexican oaks, p. 898., add the following: —

Q. *Skínneri Benth.* A very remarkable species, having the fruit of most unusual size, with the external appearance of an acorn, and with the internal structure of a walnut. A noble tree, from 50 ft. to 70 ft. high, on mountains. (*Gard. Chron.*, vol. i. p. 116.) The foliage and male

flowers said to be precisely as described and figured in *Q.* acutifòlia *Nees*, p. 904. fig. 1690.; and, consequently, the name Skínner*i* may be considered as a synonyme to *Q.* acutifòlia.

♈ Q. *pyrenàica*, p. 853. Add, either as an allied Species or as a Variety: — "Q. *pannónica* Booth. Hungary. Introduced to the H. S. Garden from the Hamburg Nursery."

♈ Q. *rùbra*, p. 868. Add as a Variety: — "Q. *r.* *taraxacifòlia* Booth. A singular variety, with long narrow irregularly lobed leaves. H. S."

♈ F*A*'*GUS sylvática*. Add as as a Variety: — "F. *s.* 9 *cochleàta* Booth. Said to be a curious plant with spoon-shaped leaves. (*G. M.* 1842.)"

PLATANA'CEÆ. Page 927.

♈ PL*A*'*TANUS* [*occidentàlis*] *heterophýlla* Lindl. This American plane has hitherto been confounded in some collections with the Oriental species, *Pl*átanus *a*cerifòlia. It has the same kind of fruit as *P.* occidentàlis, while *P.* *a*cerifòlia has fruit like that of *P.* orientàlis. *P.* [o.] heterophýlla is frequently imported from the southern states of America under the name of *P.* occidentàlis, from which it is very distinct in foliage and stature; and it is also much tenderer. The young shoots frequently suffer during winter, and particularly if the plant is in a damp situation.

CONI'FERÆ. Page 946.

♀ P*I*'*NUS* (*Larício*) *austrìaca* Höss, p. 958., is treated as a sub-species, for the sake of keeping it distinct, though we had given above Delamarre's arrangement, who considers it a variety of *P.* Larício, which is also our opinion.

♀ *P.* Chilghòza, which is given p. 998., with a ?, as a synonyme to *P.* Gerard*iàna*, Mr. Gordon says is different from *P.* Gerard*iàna*, but nearly related to *P.* longifòlia, p. 996.

♀ P. *sinénsis*, p. 999. Add as Synonymes: "*P.* nepalénsis *Pin. Wob.*," and "*P.* Cavendish*iàna* Hort."

Add after P*ì*nus *oocárpa*, p. 1012.: —

♀ P. *oöcarpòides* Lindl. A pine from Guatemala, with very long slender leaves, five in a sheath, and cones about half the size of those of *P.* oöcárpa, of which it is probably a variety.

♀ P. Ayacahuìte, p. 1023. Mr. Gordon says there are two distinct pines under this name: the one Ehrenberg's, described in the text; and another, sent home by Hartweg, the cones of which are about half the size of Ehrenberg's plant, and the buds much smaller. Probably a variety.

♀ A'*BIES Douglàs*ii, p. 1033. Mr. Gordon says he has cones under this name of three distinct varieties or species; Hartweg's are the largest, and Ehrenberg's the smallest. Probably, Hartweg's may be that doubtful species *A.* hirtélla *H. et K.*: see p. 1036. and p. 1050.

♀ T*HU*'*JA péndula*, p. 1071. Omit the Synonyme "? *J*uníperus flagellifórmis *Hort.*"

♀ C*UPRE*'*SSUS torulòsa*, p. 1076. Add "Wallich" to the Identification; and insert as Synonymes, "*C.* nepalénsis *Hort.*," and "*J*uníperus nepalénsis *Hort.*"

♀ C. *Coultèr*ii, p. 1077. Omit this as a species, and add it as a Synonyme to C. *thurífera*, in the same page.

♂ *TAXO*'*DIUM dístichum*, p. 1078. Add to the Varieties: —

♂ *T. d.* 6 *nucíferum*. (*T*áxus nucífera *Hort.*) A very distinct variety, or possibly species, which has been found quite hardy in the H. S. Garden.

JUNI'*PERUS gossainthànea* Hort., and *J. Bedford*iàna *Hort.*, are names applied to the same species, which resembles a red cedar, but is rather more slender in habit.

# LIST OF AUTHORITIES

## FOR GENERIC AND SPECIFIC NAMES, &c.

### A.

*Abbott.* - - *Abbott.* A botanical amateur.
*Ach.* - - *Acharius.* A Swedish professor, and writer upon Lichens.
*Adans.* - - *Adanson.* A French systematic botanist.
*Afzel.* - - *Afzelius.* A Swedish professor.
*Ait.* - - *Aiton.* Director of the Royal Garden at Kew.
*All.* - - *Allioni.* An Italian botanist.
*All. Ped.* - See *Allioni.*
*Alpin.* - - *Prosper Alpini.* An Italian physician, and author of "DePlantis Ægypti et de Balsamo," &c.
*Anders.* / *Anderson.* - *Anderson.* A London Merchant; published a paper on Pæonies.
*Andr.* / *Andrews.* - *Henry Andrews.* A botanical draughtsman, and editor of the "Botanical Repository," &c.
*Arn.* / *Arnott.* - *W. Arnott.* A Scotch botanist.
*Audib.* / *Audibert.* - *Audibert.* A nurseryman at Tarascon, in the south of France.

### B.

*Bab.* - - *Babington.* An English botanist.
*Balb.* / *Balbis.* - - *Balbis.* A French professor of botany.
*Banks.* - - *Sir Joseph Banks.*
*Banister.* - *Banister.* A botanical author, and traveller.
*Bartr.* / *Bartram.* - *Bartram.* Formerly a nurseryman at Philadelphia.
*Bat.* / *Bast.* - - *Bastard or Batard.* A writer upon the Flora of France.
*Batsch.* - - *Batsch.* A writer upon Fungi.
*Baudr.* - - *Baudrillart.* A French author on Forestry.
*Bauh.* / *Bauhin.* - - *Bauhin.* Brothers, professors of medicine, published in 1620—1650.
*Baum.* - - *Bauman.* Brothers, nurserymen at Bollwyller, in France.
*Benth.* / *Bentham.* - *Bentham.* An English botanist, secretary to the Horticultural Society of London.
*Bergius.* - - *Bergius.* A Swedish writer upon Cape plants.
*Berlandier.* - *Berlandier.* A German botanist.
*Bert.* / *Bertol.* - *Bertoloni.* A writer upon the Flora of France.
*Best.* - - *Bester.* A German botanist.
*Bess.* / *Besser* - - *Besser,* A Russian professor, resident in the Crimea.
*Bieb.* - - *Bieberstein.* A Russian botanist of great note.
*Bigel.* / *Bigelow.* / *Big.* - *Jacob Bigelow, M.D.* Professor of botany at Boston, U. S., and author of "American Medical Botany," and "Florula Bostoniensis."
*Blackw.* - *Mrs. Blackwell.* An English botanical artist.
*Blume.* - - *Blume, M.D.* A Dutch botanist.
*Boerh.* - . *Boerhaave.* An old Dutch botanist.
*Bois.* - - *Boissier.* A Genevese botanist.
*Bong.* - - *Bongard.* A French botanist.
*Bonpl.* - - *Bonpland.* A French traveller in South America, and botanist.
*Booth.* - - *Booth.* Brothers, nurserymen at Hamburg.
*Booth.* - - *W. Beattie Booth.* Describer of the Camellias figured in Chandler's "Illustrations of the Camellieæ."
*Bork.* - - *Borkhausen.* A German botanical author.
*Borrer.* - - *William Borrer.* A writer on British Plants, and one of the authors of "Lichenographia Britannica."
*Bosc.* - - *Bosc.* A French botanist, and traveller in North America.
*Bree.* - - The Rev. *W. T. Bree.* An amateur naturalist.
*Breyn.* - - *Breyn.* Author of "Exoticarum Plantarum Centuria," &c.
*Brong.* - - *A. Brongniart.* A French botanist.
*Brot.* - - *Brotero.* A Portuguese botanist.
*Broussonet.* - *Broussonet.* A French botanist and traveller.
*Brown.* - *Dr. Brown.* A celebrated English botanist.
*Brunfelsch.* - *Brunfelschius.* A German botanist.
*Buch.* - - *Von Buch.* A German botanist, author of a Flora of the Canaries.
*Bunge.* - - *Bunge.* One of the authors of "Flora Altaica."
*Burnet.* - *Professor Burnet.* An English botanist.
*Burgsdorf.* - *Burgsdorf.* A German botanist.
*Busch.* - - *Busch.* A German gardener, once a nurseryman at Brentford, Middlesex; and afterwards gardener to the Empress Catherine, at Zarsko-je-selo.

### C.

*Camb.* - - *Cambessedes.* One of the authors of "Flora Brasiliæ meridionalis."
*Camer.* - - *Camerarius.* A German botanist, author of "Hortus Medicus et Philosophicus," &c.
*Cass.* - - *H. Cassini.* A French botanist.
*Catesb.* / *Catesby.* - - *M. Catesby.* A botanist, and traveller in North America.
*Catros.* - - *Catros.* A nurseryman at Bordeaux.
*Cav.* - *Cavanilles.* A Spanish professor and botanist.
*C. Bauh.* - *Caspar Bauhin.* A celebrated botanist of the 16th century.
*Cels.* - - *Celsius, D.D.,* Greek professor at Upsal, and friend of Linnæus.
*Cels.* - - *Cels.* A nurseryman in Paris.
*C. G. Nees Von Esenbeck.* - *C. G. Nees Von Esenbeck.* A German botanist.
*Cham* - - *Chamisso.* A German traveller round the world.

*Chandler.* - *Chandler.* A London nurseryman.
*Chois.* - *Choisy.* A Swiss botanist.
*Clus.* - *Clusius.* An old French botanist and traveller.
*Colebr.* - *Colebrooke.* A celebrated English writer upon Indian Plants.
*Colla.* - *Colladon.* A Genevese botanist.
*Com.* - *Commelin.* A Dutch botanist.
*Cook.* - *Capt. S. E. Cook.* A naturalist and traveller.
*Correa.* - *Correa de Serra.* A Portuguese botanist and diplomatist.
*Crantz.* - *Crantz.* An Austrian botanist.
*Curt.* - *Curtis.* An English writer upon Plants.

D.

*Dalech.* - *Dalechamps.* Author of "Historia generalis Plantarum." 1586, 1587.
*Dan.* - *Danish.*
*Darlington.* - *Darlington.* A writer in "Amer. Lyc. N. H." of New York.
*D. Don.* - *David Don.* Professor of Botany in King's College, London, and librarian to the Linnean Society.
*Deb.* / *De Bray.* - *De Bray.* A botanist of Frankfort.
*Dec.* / *DeCandolle.* - *A. P. DeCandolle.* The celebrated French systematic botanist.
*Del.* See *Delile.*
*Delamarre.* - *Delamarre.* A French writer on Plants.
*Delarb.* - *Ant. Delarbre.* A French botanist, author of "Flore d'Auvergne."
*Delile.* - *Delile.* A French professor, and traveller in Egypt.
*Descemet.* - *Descemet.* Director of the Botanic Garden at Nikitka, in the Crimea.
*Desf.* - *Desfontaines.* A French botanical author, and traveller in Barbary.
*Desv.* - *Desvaux.* A French professor of botany.
*Dill.* - *Dillenius.* An English botanical author.
*Dios.* - *Dioscorides.* An ancient classic author and botanist.
*Dod.* / *Dodon.* - *Dodonæus*, or *Dodoens.* A botanist of the 16th century.
*Domb.* - *Dombey.* A French traveller in South America.
*Don of Forfar.* *Don of Forfar.* A Scotch botanist.
*Donn.* - *Donn.* Formerly curator of the Cambridge Botanic Garden.
*Dougl.* / *Douglas.* - *David Douglas.* The celebrated botanical collector and martyr.
*Duby.* - *Duby.* A French botanist.
*Du Ham.* - *Du Hamel.* A celebrated French author.
*Dumont.* - *Dumont de Courset.* Author of "Le Botaniste Cultivateur."
*Dun.* / *Dunal.* - *Dunal.* A French botanist.
*Dupont.* - *Dupont.* A French botanist, author of "Double Flore Parisienne." 1805.
*Du Roi.* - *Du Roi.* A German writer upon Plants.

E.

*Ehr* - See *Ehrenberg.*
*Ehrenberg.* - *Ehrenberg.* A German traveller in Arabia, &c.
*Ehrh.* - *Ehrhart.* A German botanist.
*Elliot.* - *Elliot.* An American botanist.
*Ellis.* - *Ellis.* A London merchant and botanist.
*Eng.* - *English.*
*Eschsch.* - *Dr. Eschscholtz.* A German botanist.

F

*Fisch.* / *Fischer.* - *Dr. Fischer.* A Russian botanist.
*Flügge.* - *Flügge.* A German writer upon Grasses.
*Forbes.* - *Forbes.* Gardener to His Grace the Duke of Bedford, at Woburn.
*Forskoel.* - *Forskoel.* A Swedish botanist.
*Forsk.* - *Forskahl.* A Danish naturalist, and traveller in Arabia.
*Forst.* - *Forsters* (*Father and Son*). Travellers in the South Seas with Captain Cook.
*Fourc.* - *A. F. Fourcroy.* A French botanist.
*Fr.* - *French.*
*Fries.* - *Fries.* A Swedish botanist, and writer upon Fungi.
*Fuch.* - *Fuchs.* A celebrated German botanist.

G.

*Gært.* - *Gærtner.* A celebrated German carpologist.
*Garden.* - *Garden.* A Scotch physician resident at Charleston.
*Gaudichaud.* - *Gaudichaud.* A French botanist.
*G. Don.* - *Geo. Don.* A botanist, and editor of "Don's Miller."
*Ger.* - *German.*
*Ger.* / *Gérard.* - *Gérard.* A French botanist.
*Gesn.* - *Conrad Gesner* of Zurich, a famous botanist.
*Gill.* - *Dr. Gillies.* A botanist and traveller.
*Gill. et Hook.* See *Gill.*, and also *Hook.*
*Gmel.* - *Gmelin.* A Russian botanist, and traveller in Siberia.
*Godefroy.* - *Godefroy.* A nurseryman at Ville d'Avray, near Paris.
*Goldie.* - *Goldie.* A nurseryman at Ayr, in Scotland.
*Gordon.* - *George Gordon.* Superintendant of the Arboretum in the Horticultural Society's Garden.
*Gouan.* - *Gouan.* A French botanist.
*Grah.* / *Graham.* - *Graham, M.D.* Regius professor of Botany at Edinburgh.
*Güldenst.* - *Güldenstaedt.* A Russian botanist.
*Guss.* - *Joannes Gussone, M.D.* Director of the Royal Botanic Garden at Palermo, and a botanical author.

H.

*Hall.* - *Haller.* A Swiss botanist.
*Hall. fil.* - *Haller the younger.*
*Ham.* / *Hamilt.* - *Hamilton.* A botanist, and traveller in the East Indies.
*Hart.* - *Hartweg* Author of "Hortus Carlsruhensis."
*Hartweg.* - *Hartweg.* Son of the above. A botanical traveller and collector.
*Hartwiss.* - *Hartwiss.* A German botanist.
*Hayne.* - *Hayne.* A German botanist.
*Haworth.* - *Haworth.* An English botanist.
*H. B.* - *Humboldt and Bonpland.* Famous travellers and botanists.
*H. B. et Kth.* *Humboldt, Bonpland, and Kunth.* German botanists.
*Herm.* - *Herman.* A Dutch botanist.
*Hoffmanns.* - *Hoffmannsegg.* A botanist of Dresden.

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| *Hook.* | *Sir W. J. Hooker.* Regius professor of Botany in the University of Glasgow. |
| *Hook. et Arn.* | *Sir W. J. Hooker and W. Arnott,* authors of "The Botany of Capt. Beechey's Voyage to the Pacific," &c. |
| *Hoppe.* / *Hopp.* | *Hoppe.* A German botanist, and collector of plants. |
| *Horn.* | *Hornemann.* A Danish botanist and professor. |
| *Hort.* | *Hortulanorum.* Of the Gardeners. |
| *Hort. Dur.* | *Hortus Duroverni,* by W. Masters. |
| *Hort. Par.* | *Of the Paris Garden.* |
| *Host.* | *Host.* An Austrian botanist, and botanical author. |
| *Höss.* | *Höss.* An Austrian writer on Forestry. |
| *H. S.* | *The London Horticultural Society.* |
| *Huds.* | *Hudson.* An English writer upon British plants. |
| *Humb. et Bonp.* / *Humb. et Bonpl.* | *Humboldt and Bonpland.* — See *H. B.* |

I.

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| *Illig.* / *Illiger.* | *C. Illiger.* A writer on natural history. |
| *Ital.* | *Italian.* |

J.

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| *Jacq.* | *Jacquin.* An Austrian traveller in South America, and botanist. |
| *Jacq. et Boccone.* | *Jacquin.* A celebrated Austrian botanist. — *Boccone.* A botanist of Italy. |
| *James Gordon.* | *James Gordon.* A celebrated nurseryman at Mile End, near London, who corresponded with Linnæus. |
| *J. Bauh.* | *Jo. Bauhin,* brother of Caspar Bauhin, and author of "Historia Plantarum universalis." 1650, 1651. |
| *Juss.* | *Jussieu.* A celebrated French systematic botanist. |

K.

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| *Kæmpf.* | *Kæmpfer.* A traveller in Japan. |
| *Ker.* | *Ker.* A describer of plants in "Bot. Reg." |
| *Kerner.* | *J. S. Kerner.* Author of "Figures (et Descriptions) des Plantes économiques." 1786—1794. |
| *Kit.* / *Kitaib.* | *Kitaibel.* A Hungarian botanist. |
| *Knowl. et Westcott.* | *Knowles (G. B.) and Westcott (F.).* Conductors of the "Floral Cabinet." |
| *Koch.* | *Koch.* A professor at Erlangen. |
| *Koehl.* | *Koehler.* A writer on German and French grasses. |
| *Krause.* / *Krauss.* | *Krause.* A Dutch botanist, and author of "Boomen en Heestar." |
| *Kunth.* | *Kunth.* A Prussian botanist. |

L.

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| *L.* | *Linnæus.* The celebrated reformer of natural history. |
| *Lab.* / *Labill.* | *Labillardière.* A French botanist. |
| *Lag.* | *Lagasca.* A Spanish botanist and professor. |
| *Lam.* / *Lamarck.* | *Lamarck.* A French botanist. |
| *Lamb.* / *Lambert.* | *A. B. Lambert, F. R. S.* President of the Linnean Society. |
| *Lanth.* | *Lanth.* Author of "Dissertatio de Acere." |
| *Lap.* / *Lapey.* | *La Peyrouse.* A French writer upon the plants of the Pyrenees. |
| *Lawr.* | *Lawrence (Miss).* An English flower-painter. |
| *Laxm.* | *Laxmann.* A German writer on Siberian plants. |
| *Lech.* | *Lechenault.* A French botanist. |
| *Led.* / *Ledeb.* | *Ledebour.* A botanist, and traveller in Siberia. |
| *Lee.* | *Lee.* A nurseryman at Hammersmith. |
| *Lessing.* | *Lessing.* A writer on Compósitæ, and resident at Berlin. |
| *L. fil.* | *Linnæus the younger.* |
| *L'Hér.* / *L'Hérit.* | *C. L. Héritier.* A French botanist and author. |
| *Linn.* | *Linnæus.* The celebrated reformer of natural history. |
| *Lindl.* | *Dr. Lindley, F.R.S., &c* Professor of botany in University College, London. |
| *Link.* / *Lk.* | *Link.* A celebrated Prussian botanist. |
| *Lob.* / *Lobel.* / *L'Obel.* | *Lobel.* An old writer upon plants. |
| *Lodd.* / *Loddiges* | *Messrs. Loddiges.* Celebrated English nurserymen and botanists, Hackney. |
| *Lois.* / *Lois. Deslongchamps* | *Loiseleur Deslongchamps.* A French botanist. |
| *Lour.* | *Loureiro.* A Portuguese traveller in Cochin-China. |
| *Lyon.* | *Lyon.* A collector of American plants. |

M.

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| *Mackay.* | *J. T. Mackay, A.L.S.* Author of "Flora Hibernica." |
| *Malcolm.* | *Malcolm.* Late nurseryman at Kensington. |
| *Marsh.* / *Marshall.* | *Marshall.* A writer on American trees. |
| *Mart.* | *Dr. Martius.* A celebrated German botanist and traveller. |
| *Masters.* | *W. Masters* of the Canterbury Nursery. |
| *Matth.* | *Matthiolus.* An Italian physician. |
| *Medik.* | *Medicus.* A German botanist of the last century. |
| *Menzies.* | *Menzies.* A Scotch botanist, and traveller round the world with Vancouver. |
| *Mertens.* | *Mertens.* A French botanist. |
| *Meyer.* | *Meyer.* A German botanist. |
| *Michx.* / *Michaux.* | *Michaux.* A French botanist, and traveller in N. Amer., and author of "Flora Borealis Americana." |
| *Michx. fils.* / *Michx. jun.* | *Michaux the younger.* Also a botanist and traveller in N. America, author of "Histoire des Arbres de l'Amérique." |
| *Mill.* | *Miller.* An English gardener and botanist. |
| *Mirb.* | *Mirbel.* A French physiological botanist. |
| *M'Nab.* | *M'Nab.* Superintendant of the Edinburgh Botanic Garden. |
| *Moc.* | *Mocino.* A Mexican botanist. |
| *Moc. et Sesse.* | *Mocino and Sesse.* Two Mexican botanists. |
| *Mœnch.* | *Mœnch.* A German botanist. |
| *Mühl.* / *Mühlenb.* / *Mühlenberg.* | *Mühlenberg.* A North American botanist. |
| *Munch.* | *Baron Otto von Munchausen,* A German botanist. |
| *Munt.* / *Munting.* | *A. Munting.* A German botanist. |
| *Murr.* | *Murray.* A German botanist. |

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| *Mutis.* | *Mutis.* A Spanish botanist, resident in New Grenada. |
| *Mx.* | *Michaux.* See *Michx.* |

N.

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| *N. Amer.* | *N. Amer.* North American. |
| *Neck.*, *Necker.* | *Necker.* A German writer upon botanical affairs. |
| *Nees.*, *Nees von Esenbeck.* | *Nees von Esenbeck.* A German botanist. |
| *Neill.* | *Dr. Neill* of Canon Mills. A zealous botanist, and promoter of horticulture. |
| *Nestl.* | *Nestler.* A botanist of Strasburg. |
| *Niss.*, *Nissole.* | *Nissole.* A French botanist. |
| *Nois.*, *Noisette.* | *Noisette.* A French nurseryman. |
| *Nutt.*, *Nuttall.* | *Nuttall.* A North American botanist. |

O.

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| *Œd.* | *Oeder.* A Danish botanist. |
| *Opiz.* | *Opiz.* A German botanist. |

P.

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| *Pall.* | *Pallas.* A Russian traveller and naturalist. |
| *Parm.* | *Parmentier.* A French nurseryman. |
| *Parkinson.* | *Parkinson.* An old botanical author. |
| *Pav.* | *Pavon.* A Spanish botanist. |
| *Penny.* | *George Penny.* A botanist and nurseryman. |
| *Perrottet* | *Perrottet.* A French botanist. |
| *Pers.* | *Persoon.* A French botanist and botanical author. |
| *Ph.* | *Pursh.* A Prussian botanist, and traveller in North America. |
| *Pliny.* | *Pliny.* An ancient naturalist, and classic author. |
| *Pluk.* | *L. Plukenett.* A Dutch botanist. |
| *Poir.* | *Poiret.* A French botanical writer. |
| *Poit. et Turp.* | *Poiteau and Turpin.* French botanical draughtsmen. |
| *Poll.* | *Pollich.* A German writer on the plants of the Palatinate. |
| *Port.* | *Portuguese.* |
| *Potts.* | *J. Potts.* A collector of plants in China. |
| *Pourr.* | *Pourret.* A French botanist. |
| *Presl.* | *Presl.* A Bohemian botanist. |
| *Pursh.* | *Pursh.* A Prussian botanist, and traveller in North America. |

R.

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| *R. et P.* | *Ruiz and Pavon.* Spanish botanists and travellers in Peru and Chile. |
| *R. & S.* | *Rœmer et Schultz.* German botanists. |
| *Raf.*, *Rafin.*, *Rafinesque.* | *Rafinesque Schmalz.* A botanical author. |
| *Ramond.* | *Ramond.* A French botanist. |
| *Ray.* | *John Ray.* A celebrated botanist and naturalist. |
| *R. Br.*, *R. Brown.* | *Dr. Robert Brown, F.R.S., &c.* A distinguished English botanist, and traveller in New Holland, |
| *Red.*, *Redouté.* | *Redouté.* A French botanist. |
| *Reich.* | *Reichenbach.* A German botanist. |
| *Reneaulm.* | *P. Reneaulme.* Author of "Specimen Historiæ Plantarum." 1611. |
| *Retz.* | *Retzius.* A German botanist. |
| *Rich.* | *Richard.* A French botanist. |
| *Richards.*, *Richardson.* | *Dr. Richardson.* A traveller in the northern parts of British America, and author of the Appendix on Natural History to Franklin's "Travels." |
| *Robs.* | *Robson.* An English botanist. |
| *Röm. et Schult.*, *Rœm. et Schult.* | *Rœmer*, a German botanist; and *Schultz*, a Bavarian botanist. |
| *Ronalds.* | *Ronalds*, A nurseryman at Brentford. |
| *Rossmässler.* | *Rossmässler.* A German entomologist. |
| *Rott.* | *Rottler.* A German missionary. |
| *Roxb.* | *Roxburgh.* An Indian botanist. |
| *Royle.* | *Dr. Royle, F.R.S., &c.* Prof. of Mat. Med. in King's College. Author of "Illustrations of the Natural History and Botany of the Himalayas," &c. |
| *Ruiz et Pav.*, *Ruiz et Pavon.* | *Ruiz and Pavon.* Spanish botanists, and travellers in Peru and Chile. |
| *Russ.* | *Russell.* A botanist of Aleppo. |
| *Russ.* | *Russian.* |

S.

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| *Sab.*, *Sabine.* | *J. Sabine, F.R.S., &c.* A great encourager of natural history, botany, and gardening. |
| *Sal.*, *Salisb.* | *Salisbury.* An eminent English botanist. |
| *Sang.* | *Sang.* A Scotch nurseryman and author. |
| *Santi.* | *Santi.* An Italian botanist. |
| *Schiede et Deppe.* | *Schiede and Deppe.* Writers on the botany of Mexico. |
| *Schl.* | *Schleicher.* A Swiss plant-collector. |
| *Schlecht.* | *Schlechtendahl.* A celebrated German botanist. |
| *Schlecht. et Cham.* | *Schlechtendahl and Chamisso* Two German botanists. |
| *Schleicher.* | *Schleicher.* A Swiss plant-collector. |
| *Schmidt.* | *Schmidt.* A German botanical author. |
| *Schrad.*, *Schrader.* | *Schrader.* A German botanist. |
| *Schrank.* | *Schrank.* A Bavarian botanist. |
| *Schreb.* | *Schreber.* A German botanist. |
| *Schubert.* | *Schubert.* A Polish botanist. |
| *Schult.*, *Schultes.* | *Schultes.* A Bavarian botanist. |
| *Scop.* | *Scopoli.* An Italian botanist. |
| *Ser.*, *Seringe.* | *Seringe.* A Swiss botanist. |
| *Sibth.* | *Sibthorp.* An English botanist, and professor of botany at Oxford, traveller in Greece, and author of "Flora Græca." |
| *Sieb.* | *Sieber.* A botanical collector. |
| *Sieb.* | *Siebold (Dr. von).* A Bavarian botanist, who has imported many valuable plants from Japan. |
| *Sievers.* | *Sievers.* A German botanist. |
| *Sims.* | *Sims.* An English garden botanist. |
| *Smith.* | *Sir J. E. Smith.* Founder of the Lin. Soc., and author of several botanical works. |
| *Smith of Ayr.* | *Smith.* Nurseryman of Ayr. |
| *Sol.*, *Soland.* | *Solander.* A Swedish botanist, and companion of Sir Joseph Banks in Cook's voyage round the world. |
| *Soulange-Bodin.* | *Soulange-Bodin.* A French botanist and horticulturist. |
| *Spach.* | *Spach.* A writer in the "Annales des Sciences Naturelles." |
| *Span.* | *Spanish.* |

*Spr.* / *Spreng.* - *Sprengel.* A German botanist.
*Steph.* / *Stephens.* - *Stephens.* A British entomologist.
*Stev.* / *Steven.* - *Steven.* A Russian botanist.
*Stokes.* - - *Stokes.* An English physician.
*Svenks.* - *Svenks.* A Swedish botanical author.
*Sweet.* - - See *Swt.*
*Swed.* - - *Swedish.*
*Swt.* - - *Sweet.* An English botanist.
*Swz.* / *Swartz.* - *Swartz.* A Swedish botanist, and traveller in the West Indies.

T.

*Tausch.* - *Tausch.* A German botanist.
*Tav.* - - *Tavernier.* A traveller in the East.
*Ten.* / *Tenore.* - *Tenore.* A Neapolitan botanist.
*Theoph.* - *Theophrastus.*
*Thore.* - - *Thore.* A French botanist.
*Thory.* - - *Thory.* A French botanist.
*Thouin.* - *Thouin.* A French botanist.
*Thuil.* / *Thuillier.* - *Thuillier.* A French botanist.
*Thun.* / *Thunb.* - *Thunberg.* A Swedish botanical traveller.
*T. Nees ab E.* *T. Nees ab Esenbeck.* A German botanist.
*Torrey.* - - *Torrey.* An American botanist.
*Torr. et Gray.* *Drs. Torrey and Gray.* Authors of the "Flora of North America."
*Tourn.* - *Tournefort.* An old French botanist, and traveller in Greece and Asia Minor.
*Trag.* - - *Tragus* or *Bock.* A German botanist.
*Trat.* - - *Trattinik.* A botanist of Vienna.

V.

*Vahl.* - - *Vahl.* A botanical author.
*Vail.* - - *Vaillant.* A French botanist and traveller.
*Vent.* - - *Ventenat.* A French botanist.
*Verz.* - - *Hoffman's Verzeichnungen über Pyrus*
*Vest.* - - *Vest.* A Styrian botanist.
*Vill.* / *Villars.* - *Villars.* A French botanist.
*Vin.* - - *Jacquin's "Hortus Vindobonensis."*
*Vis.* - - *Dr. Visiani.* A writer on the Flora of Dalmatia.
*Vitm.* - - *Vitmann.* A German botanist.
*Viv.* - - *Viviani.* An Italian botanist.

W.

*W.* - - *Willdenow.* A German botanist, and editor of an edition of Linnæus's "Species Plantarum," &c.
*Wahlenb.* - *Wahlenberg.* A Swedish botanist.
*Wal.* / *Waldst.* - *Waldstein.* A noble German patron of botany.
*Waldst. et Kit.* *Waldstein and Kitaibel.* Authors of the "Flora of Hungary."
*Walker.* - *Dr. Walker.* A Scotch writer on plants.
*Wall.* - - *Wallich.* Superintendent of the Botanic Garden at Calcutta.
*Wallr.* - - *Wallroth.* A German botanist.
*Walt.* - - *Walter.* A writer on the "Flora of Carolina."
*Wang.* / *Wangenh.* / *Wangenheim.* - *Wangenheim.* A German botanist.
*Wats.* / *Watson.* - *Watson.* An English writer upon trees and shrubs.
*Webb.* - - *Webb.* An English botanist and author.
*Weihe et Nees.* *Weihe and Nees.* Two German writers on Rubi.
*Wendl.* - - *Wendland.* A German garden botanist.
*Wicks.* - - *Wickstrom.* A German botanist.
*Willd.* - - See *W.*
*Wood.* / *Woods.* - *Woods.* An English writer on roses.
*Woodv.* - *Woodville.* An English botanist.
*Wulf.* - - *Wulfen.* A German botanist.

# LIST OF BOOKS REFERRED TO,

## THE TITLES OF WHICH ARE ABRIDGED IN THE TEXT.

A.

*Abbildung der deutschen Holzarten, &c.* F. Guimpel, C. L. Willdenow, and F. G. Hayne, Abbildung der deutschen Holzarten, &c. Berlin, 1820. 4to, pl. 216.

*Abbildung der fremden in Deutschland ausdauernden Holzarten, &c.* F. Guimpel, Abbildungen der fremden in Deutschland ausdauernden Holzarten, mit Angabe der Cultur von F. Otto, und Beschreibung von F. G. Hayne. Berlin. 1819—1825. 4to.

*Abb. Inst.* See *Abbott and Smith's Natural History of Georgia.*

*Abb. and Smith, Ins. of Georgia.* See ibid.

*Abbott and Smith's Insects of Georgia.* See ibid.

*Abbott and Smith's Natural History of Georgia.* Abbott and Smith's Natural History of the Lepidopterous Insects of Georgia. London. 2 vols. fol.

*Abel's Chin* Personal Observations made during the Progress of the British Embassy to China, and on its Voyage to and from that Country in the years 1816 and 1817. By Clerk Abel. Lond. 1818. 4to.

*Abhand. König. Akad. Wissens. Berlin.* Abhandlungen der Physikalischen Kasse der Königlich-Preussischen Akademie der Wissenschaften aus den Jahren 1820 und 1821. Berlin, 1822. 4to.

*Achar. Acad. Handl.* Acharius in Königl. Vetenskaps-Academiens Handlinger. 1741, and continued. 8vo.

*Act. Gall.* Mémoires de l'Académie Royale de Paris.

*Act. Nat. Cur.* Acta Naturæ Curiosorum. Norimbergæ et Bonnæ. 1730, and continued. 4to.

*Act. Nat. Scrut. Berl.* Beschäftigungen der Berlinischer Gesellschaft Naturforschender Freunde. Berlin, 1775, and continued. 8vo.

*Act. Petrop.* Commentarii Academiæ Scientiarum Imperialis Petropolitanæ. Petropoli, 1728—1751. 14 vols. 4to.

*Act. Soc. Batav.* Verhandelingen van het Bataafsch Genootschapp der Proefondervindelyke wysbegeerte te Rotterdam. Rotterdam, 1774, and continued. 4to.

*Act. Succ.* Acta Literaria Sueciæ. Upsal, 1720, &c. 4to.

*Act. Taur.* Mémoires de l'Académie Royale des Sciences de Turin. 4to. 1782—1816.

*Adans. Fam.* Familles des Plantes, &c. By Michael Adanson. Paris, 1763. 2 vols. 8vo.

*Afz. Ros. Suec. Tent.* Afzelius (Ad.), De Rosis Suecanis Tentamina. Upsal, 1804—1807. 4to.

*Agricult. Manual.* The Agriculturist's Manual; being a familiar Description of the Agricultural Plants cultivated in Europe, including Practical Observations, &c. By P. Lawson and Son. Edinb. 1836. 8vo.

*Ait. Hort. Kew.* W. Aiton's Hortus Kewensis. A Catalogue of Plants Cultivated in the Royal Gardens at Kew. Lond. 1810. 5 vols. 8vo.

*Ald. Hort. Far.* Aldinus (Tob.), Descriptio rariorum Plantarum in Horto Farnesiano. Romæ, 1625. fol.

*All. Ped.* Allioni (C.), Flora Pedemontana, sive Enumeratio methodica Stirpium indigenarum Pedemontii. Aug. Taur. 1785. 3 vols. fol. pl. 92.

*Alp. Eg.* Prosper Alpinus, De Plantis Ægypti Liber. Venetiis, 1592. 4to.

*Alp. Exot.* Alpinus (P.), De Plantis Exoticis Libri ii. Edidit (A.) Alpinus. Venetiis, 1629. 4to.

*Alpin. Exot.* Id., De Plantis Exoticis Libri duo. Venetiis, 1629. 4to.

*Am. Acad.* Amœnitates Academicæ, seu Dissertationes variæ Physicæ, &c. By Linnæus and his Pupils. Erlangen, 1790. 10 vols.

*Amer. Lyc. N. H. of New York.* Annals of the Lyceum of Natural History of New York. New York, 1824, and continued. 8vo.

*Amm. Ruth.* See *Ammann Stirp. Ruth.*

*Ammann Stirp. Ruth.* Ammann (Johan.), Stirpium rariorum in Imperio Rutheno sponte provenientium Icones et Descriptiones. Petrop. 1739. 4to.

*Anderson MS.* Geo. Anderson, Esq., Tooley Street and North Mimms, Herts.

*Andr. Bot. Rep.* The Botanist's Repository for New and Rare Plants. By H. C. Andrews. Lond. 1797. et seq. 10 vols. 4to.

*Andr. Heaths.* Coloured Engravings of Heaths, with botanical descriptions. Id. Lond. 1802—1809. 3 vols. fol.

*An. Hort. Soc. Par.* See *Annales de la Société d'Horticulture de Paris.*

*Anleit. die Bäume und Sträuche Oesterreichs, &c.* Gemeinfassliche Anleitung die Bäume und Sträuche Oesterreichs aus den Blättern zu erkennen. Von Franz Höss. Vienna, 1830. 12mo.

*Ann. d'Hort.* See *Annales de la Société d'Horticulture de Paris.*

*Annales d'Hort. de Paris.* See ibid.

*Annales de la Société d'Horticulture de Paris.* In monthly Nos. 8vo. 1827, and continued; amounting, in 1837, to 21 vols. 8vo.

*Annales du Musée.* Annales du Muséum d'Histoire Naturelle. Paris. 8vo. Begun in 1802, and continued.

*Ann. du Mus. d'Hist. Nat. de Paris.* See *Annales du Musée.*

*Ann. Lyc.* See *Amer. Lyc. N. H. of New York.*

*Ann. of Bot.* Annals of Botany. By C. König and J. Sims. Lond. 1805, 1806. 2 vols. 8vo.

*Ann. Sc. Nat.* Annales des Sciences Naturelles, &c. Paris. 8vo.

*Ann. Nat. Hist.* Annals of Natural History. By Sir W. J. Hooker and others.

*Antoine's Coniferen.* Die Coniferen, &c. By Franz Antoine.

*Arb. Brit.* Arboretum et Fruticetum Britannicum. 1st ed.

*Ard. Mem.* Pietro Arduini, Memoria di Osservazioni e di Sperienze sopra la Coltura e gli Usi di varie Piante. Padova, 1776. 4to.

*Asiat. Research.* Asiatic Researches; or, Transactions of the Society instituted in Bengal, for enquiring into the History, the Antiquities, the Arts and Sciences, and Literature of Asia. Calcutta, 1788, continued.

*Asso Syn. Arr.* Ignatius De Asso, Synopsis Stirpium indigenarum Arragoniæ. Marsiliæ, 1779. 4to.

*Audub. Cat.* Audibert of Tarascon's Nursery Catalogue.

*Balb. Cat. Taur.* Balbis (J. B.), Catalogi Horti Botanici Taurinensis. 1805—1813. 8vo.

*Banist. Cat. Stirp. Virg.* Herbarium Virginianum: or, an Account of such Plants as J. Banister sent the Designs of to the Bishop of London, published in James Petiver's Memoirs for the Curious. 1767.

*Banks. Herb.* The Banksian Herbarium, now in the British Museum.

*Banks Icon. Kæmpf.* Josephus Banks, Icones selectæ Plantarum quas in Japonia collegit et delineavit E. Kæmpfer. Lond. 1791. fol.

*Barrel. Icon.* See *Barrelier Plantæ, &c.*

*Barrelier Plantæ per Galliam, &c.* Plantæ per Galliam Hispaniam et Italiam observatæ. By Jacob Barrelier. Paris, 1714. Fol.

*Barr. Rar.* See *Barrelier Plantæ, &c.*

*Bart. Cat.* Bartram's Catalogue of American Trees and Shrubs.

*Bart. Fl. Vir.* Barton (W. P. C.). A Flora of North America. Philadelphia, 1831. 8vo.

*Bartram Itin.* See *Bartram's Travels.*

*Bartram's Travels.* Travels through South and North Carolina. By William Bartram. Philadelphia, 1791. 1 vol. 8vo.

*Bartram Trav., ed. Germ.* William Bartram's Reisen durch Nord- und Sud-Carolina, aus dem Englischen, von E. A. W. Zimmermann. Berol. 1793. 8vo.

*Batard Suppl.* Supplément à l'Essai sur la Flore du Département de Maine et Loire. By T. Bastard, or Batard. Angers, 1812. 1 fasc., 12mo.

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Z.

*Zucc. Flora.* Siebold (P. F. de) and Zuccarini (J. G.), Flora Japonica. fol.

# GLOSSARIAL INDEX.

A.

*Accessory*, something added to the usual number of organs.
*Accumbent*, reclining or lying on.
*Acerose*, slender, or needle-shaped, as in the leaves of some of the cone-bearing trees.
*Achenium*, a dry fruit, which does not open when ripe, and contains one seed not adhering to the pericarp.
*Acicular*, needle-shaped.
*Acuminated*, having a taper point.
*Acute*, sharp-pointed.
*Adnate*, grown to for its whole length.
*Æstivation*, the folding of the parts of a flower in the bud.
*Aggregate*, clustered.
*Albumen*, the solid farinaceous part of the seed, destined to nourish the embryo.
*Albuminous*, furnished with albumen.
*Alburnum*, the sap-wood of trees.
*Alveolate*, honeycomb-like.
*Ament*, a catkin, or inflorescence consisting of chaffy scales, arranged along a thread-like receptacle.
*Amentaceous*, producing or bearing aments.
*Anastomosing*, uniting of nerves and veins.
*Androgynous*, producing flowers of both sexes on the same plant.
*Angulate*, having acute angles.
*Annulated*, ringed, exhibiting circular prominences.
*Antheriferous*, furnished with anthers.
*Anther*, the part of the stamen which contains the pollen.
*Apex*, the end, or termination.
*Apicarp.* See *Epicarp.*
*Apiculated*, terminated in a little point, or prickle.
*Appendicled*, having an additional small leaf at the base of the petiole.
*Approximate*, near to.
*Arborescent*, having a tendency to become a tree.
*Argutely*, sharply.
*Aril*, *Arillus*, } an enlargement of the placenta adhering to the hilum of seeds, and sometimes enveloping them; exemplified in the outer orange-coloured coat of the seed of *Euónymus europæ'us.*
*Arrow-shaped*, lobed so as to resemble a barbed arrow.
*Articulate*, jointed.
*Assurgent*, becoming erect.
*Attenuate*, *Attenuated*, } gradually tapering to a point.
*Auricle*, an ear-like appendage.
*Awl-shaped*, narrow pointed.
*Awn*, a long bristly appendage, as the beard of corn, &c.
*Axillary*, situated in the axils, or angles formed by the union of the leaf and stem.

B.

*Baccate*, berry-like; that is, with the seeds buried in a fleshy substance, enclosed in a thin outer skin.
*Beaked*, ending in a hard curved point.
*Bellying*, swelling unequally on one side.
*Biaristate*, doubly awned.
*Bibracteate*, furnished with two bracteas.
*Bicallose*, having two small callosities, or protuberances.
*Bicuspidate*, having two points.
*Bifid*, two-cleft.
*Bilabiate*, having two lips.
*Bilamellate*, divided into two flat parts.
*Bilocular*, two-celled.
*Bipartite*, two-parted.
*Bipinnate*, twice pinnate.
*Bisetose*, having two bristles.
*Biternate*, twice ternate.
*Bladdery*, swelled out, hollow.
*Bossed*, convex, and having a projecting point in the centre.
*Bractea*, the floral leaf, situated immediately under the flower.
*Bracteate*, furnished with bracteas.
*Bracteole*, a small bractea.
*Bran-like*, having a scaly scurfy appearance.
*Bristle-pointed*, terminating in a bristle.

C.

*Caducous*, falling off soon: a calyx which falls off before the expansion of the corolla is said to be caducous.
*Calyculate*, having bracteas so disposed as to resemble an additional calyx.
*Calyptra* a thin extinguisher-shaped covering, or hollow cone.
*Calyx*, the outer envelope of a flower.
*Cambium*, elaborated sap.
*Campanulate*, bell-shaped.
*Canaliculate*, channeled, furrowed.
*Canescent*, somewhat white, hoary.
*Capillary*, hair-like, very slender.
*Capitate*, growing in a head; round and blunt.
*Capitulate*, *Capitellate*, } knobbed; growing in small heads.

*Capsule*, a dry fruit containing several seeds.
*Capsuliform*, shaped like a capsule.
*Carina*, shaped like the keel of a boat; the lower petals of a pea flower.
*Cariopsidæ*, a 1-celled, 1-seeded, superior indehiscent pericarp, adhering to the proper integuments of the seed which it contains.
*Carpel*, an individual part of a compound fruit.
*Carpophore*, a receptacle bearing only the ovarium.
*Cartilaginous*, gristly: a cartilaginous leaf has the edge strengthened by a tough rim of a substance different from that of the disk.
*Catkin*. See *Ament*.
*Cerebriform*, having an irregular brain-like appearance, as the kernel of a walnut.
*Channeled*, having a channel.
*Chartaceous*, having the consistence of paper.
*Ciliæ*, hairs resembling those of the eyelash.
*Ciliate*, surrounded with hairs, as the eyelid is with eyelashes.
*Cinereous*, grey, or ash-coloured.
*Cirrhose*, terminating in a tendril.
*Clavate*, club-shaped; the thick end uppermost.
*Claw*, the inserted, or narrow end, of a petal.
*Cloven*, divided into two parts.
*Club-shaped*, having the thick end uppermost.
*Coarctate*, pressed together.
*Cohering*, connected.
*Collateral*, parallel; side by side.
*Column*, the column in a capsule is the part to which the seeds are attached: when the filaments are combined into a solid body, they are said to be columned.
*Comose*, covered with small tufts of hairs called coma.
*Compound*, a term used in botany to express the union of several things in one.
*Concave*, more or less hollow.
*Concrete*, of one mass; joined together.
*Conduplicate*, twice folded.
*Conferruminated*, so united as to be undistinguishable.
*Conglomerate*, heaped, or irregularly crowded.
*Conical*, cone-shaped.
*Conjugate*, joined by pairs: a pinnate leaf is conjugate when it has but one pair of leaflets.
*Connectivum*, the cellular texture which connects several compartments, as in some anthers.
*Connivent*, lying close together.
*Conoid*, shaped like a cone.
*Contorted*, twisted.
*Convex*, the reverse of concave: used in opposition to that term.
*Convolute*, rolled together.
*Cordate*, heart-shaped; in the outline resembling that of a heart in cards.
*Cordate-ovate*, heart-shaped, rounded at the apex into an egg-shaped form.
*Cordiform*. See *Cordate*
*Coriaceous*, leathery, thick and tough.
*Cornute*, horn-shaped; of a horny nature.
*Corolla*, the inner envelope of a flower.
*Corpuscle*, a small body; a particle of anything.
*Corymb*, a kind of umbel with the stalks of the outer flowers longer than those of the centre, so as to form a level head.
*Corymbose*, having the form of a corymb.
*Cotyledons*, leaves enclosed in the seed, which serve to elaborate the sap before the expansion of the true leaves.
*Creeping*, extending horizontally on the surface of the ground, and rooting at the joints.
*Crenate*, scolloped; having round notches.
*Crescent-shaped*, having the form of a crescent, or half-moon.
*Crest*, a tufted, or fringed, appendage: a stamen is crested when the filament projects beyond the anther, and becomes dilated.
*Crested*, having a crest.
*Crisped*, curled.
*Cruciform*, cross-shaped: a cruciform flower consists of four petals placed in opposite directions.
*Cucullate*, curved inwards; of a cowl or hood like appearance.
*Cuneate*, wedge-shaped.
*Cuneate-lanceolate*, a form between wedge-shaped and lanceolate.
*Cuneate-linear*, a wedge-shaped leaf, which is long and narrow.
*Cuneate-oblong*, wedge-shaped and oblong.
*Cuneate-obovate*, a form between wedge-shaped and obovate.
*Cup-shaped*, having a cuplike appearance, as the cup of an acorn.
*Cupule*, a cup, as of the acorn.
*Cupular*, shaped like a cup.
*Cuspidate*, suddenly terminating in a point; spear-pointed.
*Cuticle*, the skin, or epidermis.
*Cylindrical*, cylinder-shaped, round.
*Cyme*, a kind of umbel with the stalks of the outer flowers shorter than those in the centre.
*Cymose*, flowering in cymes.

## D.

*Date-shaped*, resembling the date in form.
*Decandrous*, having 10 stamens.
*Deciduous*, falling off: a tree is said to be deciduous when it does not retain its leaves through the winter.
*Declinate*, bending downwards.
*Decompound*, a leaf is decompound when it is twice or thrice pinnate.
*Decumbent*, lying down on the ground.
*Decurrent*, running down: a leaf extended down the stem is decurrent.
*Decussate*, leaves are decussate when they grow in pairs, and alternately cross each other.
*Deflexed*, bent downwards.
*Dehiscent*, opening naturally.
*Deltoid*, shaped like the Greek Δ.
*Dentate*, marginal teeth-like incisions.
*Dentato-serrate*, having the margin divided into incisions, resembling the teeth of a saw.
*Denticulate*, having the margins finely and slightly toothed.
*Diaphanous*, semi-transparent, like horn.
*Dichotomous*, branching in pairs; forked.
*Didymous*, twin.
*Didynamous*, having two long stamens and two short ones in the same flower.
*Diffuse*, widely spread; scattered.
*Digitate*, fingered; shaped like the hand spread open.
*Dilated*, widened.
*Dimidiate*, divided into two halves.
*Diœcious*, a plant is said to be diœcious, when the male flowers are produced on one individual, and the female ones on another.
*Discoid*, furnished with a disk, or something that may be compared to a disk.
*Disk*, the fleshy annular process that surrounds the ovary in many flowers; a receptacle adhering to the calyx; also the surface of a leaf.
*Dissepiments*, the partitions by which a seed-vessel is internally divided into cells.
*Distichous*, two-ranked or two-rowed, produced in opposite rows.
*Divaricate*, spreading widely in different directions.
*Diverging*, going far from one point.
*Dorsal*, situated upon the back.
*Drupaceous*, like a drupe.
*Drupe*, a fruit consisting of a fleshy substance enclosing a hard stone, as the cherry.

## E.

*Ear-formed*, having somewhat the appearance of an ear.
*Eccentrically*, disposed irregularly; deviating from the centre.
*Echinate*, covered with prickles, like a hedgehog.
*Egg-shaped*, having the form of an egg, either in outline or otherwise.
*Elliptic*, oval; twice as long as broad, and about of equal roundness at both ends.
*Elliptic-lanceolate*, a form between elliptic and lanceolate,
*Elliptic-oblong*, oblong-ovate.
*Elongate*, lengthened out.

*Emarginate*, having a small notch in the centre of the end or tip.
*Embryo*, the young plant in the seed.
*Endocarp*, the inner membrane of fruit which forms the cells.
*Ensiform*, sword-shaped.
*Entire*, without marginal incisions.
*Epicarp*, the external integument of the fruit.
*Epidermis*, the outer skin.
*Epigynous*, situated upon the style or ovary.
*Epipetalous*, growing upon the petals.
*Eroded*, gnawed, irregularly toothed.
*Evergreen*, retaining foliage through the winter.
*Exserted*, projecting considerably beyond some other part.
*Exstipulate*, without stipules. See *Stipule*.
*Extra-axillary*, growing either from above or below the axils.

F.

*Falcate*, bent like a sickle.
*Farinaceous*, floury.
*Fascicle*, bundle.
*Fasciculate*, disposed in bundles.
*Fastigiate*, tapering to a point; of compact upright growth, as the Lombardy poplar.
*Ferruginous*, rusty; iron-coloured.
*Fibrous*, composed of fibres.
*Fibry*, thready.
*Filament*, the thread-like part of the stamen, which supports the anther.
*Filiform*, thread-shaped.
*Filmy*, having a thin skin.
*Flaccid*, flabby; not firm.
*Flagon-shaped*, bearing resemblance to the form of a flagon, or globular bottle with a slender neck.
*Flexuous*, zigzag; having an undulating direction.
*Floccose*, woolly.
*Floriferous*, bearing flowers.
*Foliolate*, having leaflets.
*Follicle*, a dry seed-vessel, having only 1-valve and one cell.
*Follicular*, having the form of a follicle.
*Foramen*, a small hole.
*Foraminose*, perforated full of holes.
*Friable*, crumbly.
*Frondose*, a term applied either to a stem which is beset with leaves, or to a proliferous flower.
*Fungous*, having the consistence of mushrooms.
*Funiculi*, small stalks by which the seeds are attached to the placenta.
*Furrowed*, having longitudinal channels.
*Fusiform*, spindle-shaped: a carrot is a fusiform root.

G.

*Galbulus*, the cone of the genus *Cupréssus*.
*Gamosepalous*, where the sepals appear to be united in one.
*Gemmaceous*, having buds.
*Gibbous*, swelled out with excess of pulp; protuberant.
*Glabrous*, smooth; without hairs.
*Gland*, a secretory vessel.
*Gland-like*, having the appearance of glands.
*Glaucescent*, somewhat hoary; or having a bluish green, or sea-green, appearance.
*Glaucous*, sea green, or bluish green.
*Glumaceous*, having husks.
*Granulated*, covered as if with grains.
*Gynobasic*, having a fleshy receptacle, bearing separate fruits.

H.

*Hastate*, formed like the head of a halbert.
*Hemispherical*, half-round.
*Hermaphrodite*, a flower is so called when it consists of both male and female organs.
*Heterogamous*, flowers of different sexes in the same head.
*Hilum*, the external mark or scar of a seed, whereby it is fixed to the placenta.
*Hirsute*, hairy.
*Hispid*, covered with bristle-like hairs.
*Hoary*, clothed with a grey or white down.
*Homogamous*, all the flowers hermaphrodite.
*Homogynous*, all the flowers female.
*Hooded*, hollowed into the form of a hood.
*Husk*, the outer covering of some seeds; also a species of calyx peculiar to grasses and sedges.
*Hypogynous*, situated below the ovarium.

I.

*Imbricate*, laid over each other like tiles.
*Impari-pinnate*, pinnate leaves, terminating with an odd leaflet.
*Incumbent*, lying upon.
*Indehiscent*, not opening naturally.
*Induplicate*, doubled or folded inwards.
*Indurate*, hard.
*Inequilateral*, unequal-sided.
*Inflated*, puffed up; blown out like a bladder.
*Inflorescence*, disposition of the flowers.
*Infra-axillary*, below the axils of the leaves.
*Infra-stipular*, below the stipules.
*Internodes*, the space between the joints in stems.
*Interpetiolar*, between the petioles or leaf-stalks.
*Introrse*, turned inwards.
*Inverted*, upside down.
*Involucel*, a small involucre.
*Involucre*, two or more bracteas united below the flower.
*Involucriform*, resembling an involucre.

J.

*Jagged*, coarsely cut.
*Jointed*, having joints or articulations.

K.

*Keel*, the lower petals of a papilionaceous flower; a resemblance to the keel of a boat, either in leaves or flowers.
*Keel-shaped*, having a keel-like appearance.
*Kneed*, bent like the knee joint.

L.

*Labiate*, having a lip or lips.
*Lamellate*, divided into thin plates.
*Lamelliform*, shaped like the gills on the under side of a mushroom and similar fungi.
*Lamina*, the upper spreading part of a petal.
*Laminated*. See *Lamellate*.
*Lanceolate*, lance or spear shaped.
*Lanceolate-elliptic*, a form between lance-shaped and elliptic or oval.
*Lanceolate-oblong*, lance-shaped and oblong.
*Lanceolate-ovate*, between lance-shaped and egg-shaped.
*Lanceolate-subulate*, between lance-shaped and awl-shaped.
*Lanuginous*, slightly woolly.
*Lateral*, on the side or sides.
*Lax*, loose.
*Leaflet*, a small leaf, forming part of a compound leaf.
*Legume*, a pod; the fruit of leguminous plants.
*Lepidoted*, having prominent dots.
*Ligneous*, woody; a term opposed to herbaceous.
*Ligulate*, strap-like, having the form of a strap.
*Limb*, the spreading part of a petal, or of a tubular flower.
*Linear*, narrow, when the two sides are nearly parallel.
*Linear-cuneated*, between linear and wedge-shaped.
*Linear-elliptic*, narrow and elliptic.
*Linear-lanceolate*, narrow lance-shaped.
*Linear-oblong*, between linear and oblong.
*Linear-setaceous*, narrow, approaching to the form of a bristle.
*Linear-subulate*, narrow, and tapering to a point.
*Lineate*, streaked in parallel lines.

*Lip*, the lower projecting petal of an irregular flower.
*Lobe*, the segment of a divided leaf.
*Loculicidal*, admitting the escape of the seeds through the valves.
*Lomen*t, a kind of pod, which, when ripe, falls in pieces at the joints.
*Lucid*, shining.
*Lunulate*, half-moon-shaped.
*Lyrate*, a leaf is lyrate when its apex is rounded, and there are several small lateral lobes towards its base; harp or lyre-shaped.

M.

*Membranaceous*, of a thin pliable texture.
*Metamorphosed*, changed from one form to another.
*Monadelphous*, having the filaments united at the bottom into one bundle, or brotherhood.
*Moniliform*, formed like a necklace, having alternate swellings and contractions.
*Monœcious*, having the stamens and pistil in separate flowers on the same plant.
*Monopetalous*, having but one petal, or having the petals united so as to appear but one.
*Monospermous*, one-seeded.
*Mucilaginous*, of a slimy nature.
*Mucro*, a sharp rigid point.
*Mucronate*, terminating in a spine, or mucro.
*Mucronate-cuspidate*, tapering suddenly to a point which is tipped with a mucro, or spine.
*Mucronate-denticulate*, toothed, each tooth terminated with a sharp point.
*Mucronulate*, having a small hard point.
*Multifid*, many-cleft.
*Muricate*, covered with short sharp points.
*Mutic*, pointless; a term opposed to mucro.

N.

*Narrowed*, tapering.
*Navicular*, boat-shaped.
*Nectariferous*, having nectaries; bearing honey.
*Nectary*, a part of the corolla, for the most part containing honey.
*Nucamentaceous*, having catkins.
*Nucleus*, the kernel of a nut.
*Nucule*, a small nut.
*Nut*, a seed enclosed within a hard shell.
*Nutant*, nodding.

O.

*Obconical*, inversely cone-shaped.
*Obcordate*, inversely heart-shaped.
*Obcuneate*, wedge-shape inverted.
*Oblanceolate*, inversely lance-shaped.
*Oblate*, flattened.
*Oblique*, not direct or parallel.
*Oblong*, two or three times longer than broad.
*Oblong-acute*, oblong and sharp-pointed.
*Oblong-cuneated*, between oblong and wedge-shaped.
*Oblong-lanceolate*, between oblong and lance-shaped.
*Oblong-linear*, in form between oblong and linear.
*Oblong-oval*, a form between oblong and oval.
*Obovate-cuneated*, between obovate and wedge-shaped, with the broadest end uppermost.
*Obovate-lanceolate*, a form between egg-shaped and lance-shaped inverted.
*Obovate-spathulate*, a form between obovate and that of a spatula.
*Obsolete*, hardly evident.
*Obtuse*, blunt.
*Ochrea*, membranous stipules surrounding the stem and cohering by their anterior margins.
*Octandrous*, having 8 stamens.
*Opaque*, not reflecting light; not transparent.
*Opposite*, placed in pairs on opposite sides of a stem.
*Orbicular*, *Orbiculate*, } circular; spherical.
*Orthotropous*, straight, and having the same direction as the body to which it belongs.
*Oval*, in the form of an ellipsis.
*Ovarium*, *Ovary*, } the germen, or incipient seed-vessel, which contains the rudiments of the future seed.
*Ovate-acuminate*, egg-shaped in the lower part, and tapering to a point.
*Ovate-acute*, egg-shaped in part, but terminating in a sharp point.
*Ovate-arrow-shaped*, a form intermediate betwen egg-shaped and arrow-shaped.
*Ovate-campanulate*, a figure between egg-shaped and bell-shaped.
*Ovate-elliptic*, between egg-shaped and elliptical.
*Ovate-globose*, a form between round and egg-shaped.
*Ovate-lanceolate*, between egg-shaped and lance-shaped.
*Ovoid*, egg-shaped.
*Ovoid-cylindrical*, egg-shaped and cylindrical.
*Ovulum*, an incipient seed.

P.

*Paleaceous*, having or abounding in chaffy scales.
*Palcæ*, chaffy scales, common in compound flowers.
*Palmate*, palm-shaped, divided so as to resemble the hand spread open.
*Panduriform*, fiddle-shaped.
*Panicle*, a loose irregular mode of inflorescence, similarly disposed to that of many grasses, as oats.
*Papilionaceous*, butterfly-shaped flowers, as those of the common pea.
*Papilliform*, bearing resemblance to small glandular excrescences or pimples.
*Pappose*, downy; having pappus.
*Pappus*, a kind of down formed by the minute division of the limb of the calyx of the Compositæ.
*Parietal*, attached to the sides or walls of the ovary.
*Pectinate*, comb-shaped.
*Pedicel*, the flower-stalk of each separate flower.
*Pedicellate*, having pedicels.
*Peduncle*, the principal flower-stalk.
*Pedunculate*, having peduncles.
*Pellucid*, transparent; bright.
*Peltate*, a peltate leaf has the petiole fixed in the centre of the disk, instead of in the margin.
*Pendulous*, drooping; hanging down.
*Pentagonal*, five-angled.
*Pentandrous*, having 5 stamens.
*Pentapetalous*, five-petaled.
*Perfoliate*, a leaf is said to be perfoliate when the stem passes through its base, as in the honeysuckle.
*Perforated*, pierced through, apparently full of holes.
*Perianth*, the flower-cup; the envelope which surrounds the flower: a term applied when the calyx cannot be distinguished from the corolla.
*Pericarp*, the covering of the seed-vessel.
*Perigonal*, having both calyx and corolla.
*Perigynous*, inserted in the calyx, or in the disk which adheres to the calyx.
*Peripheric*, curved; circular.
*Persistent*, remaining; not falling off.
*Petal*, a division of a corolla.
*Petiolate*, having petioles, or footstalks, to the leaves.
*Petiole*, the footstalk of a leaf.
*Petiolule*, the footstalk of a leaflet.
*Petiolulate*, having petiolules.
*Pilose*, hairy.
*Pinnæ*, the leaflets of a pinnate leaf.
*Pinnate*, a leaf divided into many smaller leaves or leaflets is said to be pinnate.
*Pistil*, the columnar body usually situated in the centre of a flower; when perfect it consists of the germen, style, and stigma.
*Placenta*, that part of the seed-vessel to which the seeds are affixed.
*Plano-convex*, flat on the one side and convex on the other.
*Plicate*, plaited.

*Plumose*, bearing a resemblance to feathers; feathery.
*Plumule*, the ascending shoot of a seedling.
*Pod*, a kind of seed-vessel similar to that of the common pea.
*Pollen*, farina, or dust, contained within tne cells of the anthers when perfect; it is essential to fructification.
*Polyandrous*, having more than 20 stamens inserted in the receptacle.
*Polygamous*, producing male, female, and hermaphrodite flowers on the same plants.
*Polypetalous*, having many petals.
*Pome*, a fruit composed of the fleshy tubular part of the calyx, and crowned by the persistent limb.
*Pouch*, a small bag, or sac, at the base of some petals and sepals.
*Prickle*, a rigid opaque process terminating in an acute point, unconnected with the woody fibre.
*Procumbent*, prostrate.
*Puberulous*, clothed with spreading down.
*Pubescent*, covered with short soft hairs.
*Punctured*, dotted.
*Putamen*, a nut of many cells.
*Pyramidal*, formed like a pyramid.
*Pyrenæ*, a kind of fruit, synonymous with the term Pome.
*Pyriform*, shaped like a pear.

## Q.

*Quadrangular*, having four angles.
*Quadrifarious*, arranged in four rows; or ranks.
*Quadrifid*, four-parted; divided into four parts.
*Quinquefid*, five-parted; divided into five parts.

## R.

*Raceme*, a mode of inflorescence in which the flowers are arranged around a simple filiform axis, each particular flower on its own proper footstalk.
*Racemule*, a small raceme.
*Rachis*, the common footstalk of spikes or panicles of flowers, and of compound leaves; the axis of the cone of the silver fir and the cedar.
*Radiant*, divided like the rays of a star.
*Radicle*, the root of an embryo.
*Ramentaceous*, having small loose scales upon the stem.
*Ramose*, branched.
*Raphe*, in seeds, the channel of vessels which connects the chalaza at one end of the seed-vessel with the hilum at the other.
*Receptacle*, that part of the fructification which supports the other parts.
*Recurved*, curved backwards.
*Reflexed*, bent backwards.
*Regma*, a kind of seed-vessel, three or more celled, few-seeded, superior, dry, the cells bursting from the axis with elasticity into two valves.
*Reniform*, kidney-shaped.
*Repand*, when the margin of a leaf has a wavy undulated appearance, the leaf is said to be repand.
*Replicate*, folded back.
*Reticulated*, net-like, usually applied to the veins or nerves.
*Retuse*, ending in a broad shallow notch, appearing as if bitten off at the end.
*Revolute*, rolled back.
*Rhombic*, } a figure approaching to a diamond-
*Rhomboid*, } shape.
*Rigid*, stiff.
*Ringent*, gaping.
*Rotate*, wheel-shaped: a monopetalous corolla, having a very short tube and a flat limb. is called rotate.
*Rufescent*, somewhat rusty.
*Rugose*, rough, or coarsely wrinkled.
*Runcinate*, cut into several transverse acute segments which point backwards.

## S.

*Sagittate*, arrow-shaped, shaped like the head of an arrow.
*Salver-shaped*, applied to the calyx or corolla when the tube is long and slender, and the limb flat.
*Samara*, a kind of winged seed-vessel containing one or more seeds, surrounded, or partially surrounded, by a thin transparent membrane.
*Samarideous*, bearing samaræ.
*Sarmentose*, producing trailing stems which root at every joint.
*Scabrous*, rough from little asperities.
*Scale*, a term usually applied to the bracteæ of the amentum or catkin; also bracteæ of cones.
*Scale formed*, having the form of scales.
*Scaly*, having scales.
*Scandent*, climbing.
*Scape*, a stem rising immediately from the root, bearing flowers only, or, at most, flowers and a few bracteæ.
*Scarious*, dry and membranous.
*Scobiform*, formed of a very thin, hollow, membranous aril, containing a globular free seed in its cavity.
*Secund*, arranged on one side only.
*Semi*, half.
*Seminiferous*, seed-bearing.
*Sepaloid*, resembling sepals.
*Sepals*, divisions of the calyx.
*Septicidal*, dividing at the dissepiments to admit the escape of seeds.
*Septiferous*, having septa or partitions.
*Serrate*, like the teeth of a saw.
*Serrulate*, finely notched, like the teeth of a very fine saw.
*Sessile*, without stalks.
*Seta*, a bristle; a strong, stiff, roundish hair.
*Setaceous*, resembling a bristle in form.
*Setigerous*, bearing bristles.
*Setose*, bristly; clothed with bristles.
*Sheath*, the lower part of a leaf or petiole which surrounds the stem.
*Shield*, a broad table-like process in some flowers, also the seed-vessel in lichens.
*Silicle*, a kind of pod, short and round, with two valves, and having its seeds attached to both sutures.
*Silique*, a long and narrow dry seed-vessel with two valves, the seeds of which are alternately fixed to both sutures.
*Sinuated*, cut into scollops.
*Sinus*, a notch or cavity,
*Sorosis*, a spike or raceme converted into a fleshy fruit by the cohesion, in a single mass, of the ovaria and floral envelopes.
*Spathaceous*, having a spathe; spathe-like.
*Spathulate*, shaped like a spatula.
*Sphacelate*, withered, but not decayed.
*Spicate*, having an inflorescence in which the flowers are sessile, or nearly so, upon one long common footstalk, or rachis.
*Spine*, a thorn which proceeds from the wood, not from the bark only.
*Spinescent*, furnished with spine-like processes.
*Spinule*, a small spine.
*Spurred*, having horn-like processes, produced by various parts of a flower.
*Squarrose*, ragged; scurfy.
*Stamen*, the male organ of a flower.
*Staminodia*, scales at the base of the petals in some flowers, as in those of some species of lime.
*Standard*, the upper petal in papilionaceous flowers.
*Stellate*, radiating in a star-like manner.
*Stem-clasping*, the petiole of a leaf which is dilated so as to enfold the stem with its base is said to be stem-clasping.
*Stipe*, the stalk of the germen or ovary within the corolla and calyx; the trunk of a tree-fern, &c.
*Stipitate*, furnished with a stipe.
*Stipule*, a small leaf or membrane at the base of the petiole.

*Stipulate*, having stipules.
*Stoloniferous*, bearing runners which root at the joints.
*Stomata*, pores of the epidermis.
*Striated*, streaked.
*Strigose*, covered with little, upright, stiff hairs.
*Strobile*, a cone: this term is also applied to indicate the kind of fruit produced by the magnolia.
*Style*, that part of the pistil which is situated upon the germen, and elevates the stigma.
*Sub*, somewhat; as *sub-rotund*, somewhat round, or roundish, &c.
*Suffruticose*, rather shrubby.
*Sulcate*, furrowed.
*Surculi*, young shoots; suckers; stems of mosses.
*Surculose*, producing surculi, or young shoots.
*Suture*, the line formed by the cohesion of two parts, usually applied to the fruit.
*Sycon*, a fleshy rachis, having the form of a flattened disk, or of a hollow receptacle, with distinct flowers and dry pericarpia, as in the fig.

T.

*Tendrils*, the twining organs by which some plants lay hold of others, as the vine.
*Terete*, long and round; straw-like.
*Terminal*, at the end.
*Ternary*, consisting of threes.
*Ternate*, a leaf of three leaflets is called ternate.
*Tessellated*, chequered.
*Testa*, the shell or cuticle of a seed, containing all its parts.
*Tetragonal*, four-angled.
*Tetragonous*, having four angles.
*Thyrse*, *Thyrsus*, } a mode of inflorescence in a dense or close panicle, as in the lilac.
*Thyrsoid*, resembling a thyrse.
*Tomentum*, down; white hairs closely matted together, and soft to the touch.
*Toothed*, so divided as to resemble teeth.
*Toothleted*, having small teeth.
*Top-shaped*, inversely conical; having a contraction towards the point.
*Tortuous*, twisted.
*Torulose*, having slight swellings.
*Torus*, the receptacle when somewhat elevated.
*Trailing*. See *Sarmentose*.
*Trapezoidal*, bearing a resemblance in form to that of a trapezium, or quadrilateral figure, whose four sides are not equal, and none of its sides parallel.
*Trapezoideo-cordate*, a form between that of a trapezium and that of a heart.
*Trichotomous*, branches dividing into threes.
*Trifid*, three-cleft.
*Trifoliate*, having three leaves.
*Trifoliolate*, having three leaflets.
*Trigonal*, 3-angled.
*Trigynous*, having three styles.
*Triple-nerved*, 3-nerved.
*Triquetrous*, 3-sided.
*Truncate*, blunt, as if cut off.
*Tube*, the cylindrical part of a flower.
*Tubercle*, a little knob.
*Tuberculate*, covered with little knobs or tubercles.
*Tubulous*, having a tubular calyx, corolla, nectary, stem, or leaf.
*Tufted*, forming a dense tuft.
*Tumid*, swelling.
*Turbinate*, top-shaped.
*Turgid*, puffed up; swollen

U.

*Umbellate*, having the flowers in round flat heads, the flower-stalks proceeding from one common centre.
*Umbellule*, a small umbel; a division of an umbel.
*Umbilicate*, hollowed like the navel.
*Umbilicus*, the cord which attaches the seed to the placenta.
*Umbo*, a projecting point in the centre, like the boss in an ancient shield.
*Umbonate*, having an umbo.
*Unctuous*, oily; fat.
*Undulate*, waved.
*Unguiculate*, furnished with a claw, or an unguis, as the petals of the pink.
*Urceolar*, *Urceolate*, } pitcher-shaped.
*Urceolus*, the part when bellying out in the form of a pitcher.
*Utricle*, a little bladder.

V.

*Valvate*, opening by valves.
*Valvular*, consisting of valves.
*Vaulted*, formed like the roof of a vault.
*Velvety*, covered with soft down, like velvet.
*Ventricose*, inflated; swelled out.
*Vernation*, the disposition of the young or growing leaves within the bud.
*Verrucose*, warted; covered with fleshy processes, in form resembling warts.
*Versatile*, vane-like: an anther fixed in the centre on the point of the filament, so as to be continually changing its position, is said to be versatile.
*Verticel*, a mode of inflorescence in which the flowers surround the stem in a kind of ring, though not, perhaps, inserted on all sides of it, but merely on two opposite ones.
*Verticillate*, growing in whorls round the stem.
*Vexillum*, the standard, or banner (the upper petal), of a papilionaceous, or pea, flower.
*Villous*, clothed with soft, close, loose hairs.
*Viscid*, *Viscous*, } clammy; adhesive.
*Vittæ*, longitudinal ducts or canals, containing an oily or resinous substance, found within the coat of the carpels of some umbelliferous plants.

W.

*Wavy*, undulated.
*Wedge-shaped*, inversely triangular, with rounded angles.
*Whorl*, a disposition of leaves or flowers round the stem, resembling the spokes round the nave of a wheel.
*Wing*, a membranous border; a membrane attached to some kinds of seeds, by which they are supported in the air when floating from place to place.
*Winged*, furnished with a wing or wings.
*Wings*, the side petals of a papilionaceous, or pea, flower.
*Woolly*, covered with hairs closely matted together.
*Wrinkled*, having an unequal surface.

Z.

*Zigzag*, bending from side to side.

# GENERAL INDEX.

The synonymes are in italics; and, for the sake of clearness, the usual typographical indications are omitted.
Those who wish to see any name or synonyme in connexion with the other names or synonymes to which it is allied, without the trouble of turning to the descriptions in the body of the work, may turn at once to the Table of Contents, between p. v. and p. lviii. For example, supposing it were desired to ascertain, with the least possible trouble, the position of *Cistus cyprius Lam.* among other cistuses; then, the page referred to after *C. cýprius* being 57., look for that page in the Table of Contents of pages in the Table of Contents. It will be found in the middle column of p. vii., where there are, occupying about half a column, *C. cyprius*, and all the other species and varieties of *Cistus* given in the work. Adjoining is the closely allied genus *Helianthemum*, which also contains several species of *Cistus* as synonymes.


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